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THE ZOOLOGIST:

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OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

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Name of a Plant.—The plant sent by Mr. Edward for me to name is Lycopodium inundatum.—*E. N.*

Testudo imbricata recorded as British.—Mr. Edward asks (Zool. 7714) for information on this subject. Sibbald reports the occurrence of a specimen in the Orkney Islands. Dr. Fleming states that he has credible information of one having been taken at Papa Stour, one of the West Zetland Islands. The late Dr. Turton mentioned an instance of one taken in 1774, in the Severn. All these three captures are mentioned in Bell's 'British Reptiles,' where the species is beautifully figured.—*E. N.*

Cuckoo's Egg in a Reed Warbler's Nest. — As I can find no mention in either Yarrell or Cuvier of cuckoos depositing their eggs in the nests of reed warblers, I imagine it may be of rare occurrence. While on the Thames about a mile above Streetley, with a friend, on the evening of July 12th, we noticed a reed warbler fly into some reeds. Thinking there might be a nest there, we marked it down and rode in. We found the nest close to where the bird settled, about a yard from the bank, but to our surprise saw a large brown bird on it. It remained while we cut the nest out, and pecked tremendously at our fingers when we got it into the boat. I soon saw it was a young cuckoo, and I should think was about a week or ten days old. There were a few feathers wanting on its breast, but it seemed that if it had remained two or three days longer it would have outgrown the nest, which was built on four reeds, and was unusually dirty and untidy for a reed warbler. I sent the bird to be stuffed, so all doubt as to its being a young cuckoo is done away with. On mentioning the circumstance to another friend he told me that he also had found a cuckoo's egg in a reed warbler's nest, near Colchester, in Essex, about four years ago. This fact goes a long way to prove that cuckoos, after depositing their eggs on the ground, take them up in their beaks, and thus place them in the nests of other birds, as it is obviously all but impossible for a cuckoo to remain on a reed warbler's nest while laying its egg in it.—*R. Ramsden; Brighton College, August* 19, 1861.

Description of the Larva of Pamphila Actæon. — The larva feeds, in June, on Calamagrostis epigejos, chiefly under the shade of fir trees; it makes deep notches in the edges of the leaves, which help to betray its proximity. It feeds in the evening and at night, resting in the day time extended on the flat surface of a leaf. It is of the form usual in the genus Pamphilus, and it has also the two snowy spots beneath, as in the larvæ of P. lineola and P. sylvanus. It is pale green, with a darker dorsal line, edged with a yellowish line on each side, and enclosing a paler central line. Along the side is a narrow yellow line above, and a broad one beneath; the two yellow lines on the back are prolonged as far as the middle of the green head, and run to the end of the rounded anal shield, which is narrowly edged with yellow. Towards the end of June the larva spins together two leaves with a few white silk threads, and becomes a slender, agile pupa, the peculiarities of which, however, I had no opportunity of observing. In a fortnight two males made their appearance at Vienna, I having taken the remaining pupæ with me on my journey. — *Professor Zeller, in 'Intelligencer.'*

NOTICES OF NEW BOOKS.

1. *Walks, Talks, Travels and Exploits of Two Schoolboys; a Book for Boys.* By the Rev. J. C. ATKINSON, Incumbent of Danby. 434 pp. Demy 12mo. Routledge, Warne and Routledge. 1859.

2. *Play-hours and Half-holidays, or Further Experiences of Two Schoolboys.* By the Rev. J. C. ATKINSON, Incumbent of Danby. 446 pp., Demy 12mo. Routledge, Warne and Routledge. 1860.

3. *Sketches in Natural History, with an Essay on Reason and Instinct.* By the Rev. J. C. ATKINSON, Incumbent of Danby. 338 pp., Demy 12mo. Routledge, Warne and Routledge. 1861.

WE can conceive nothing more likely than these volumes to instil a love of Natural History into the minds of those for whom Mr. Atkinson has written. Of the 'Sketches' we need say nothing; Mr. Atkinson himself says of them, "The contents of the present volume first saw the light in the form of occasional contributions to the pages of the 'Zoologist;'" they are therefore already familiar to our readers. Of the 'Walks and Talks,' 'Play-hours and Half-holidays' we could say much. They abound with correct information on the habits of animals, imparted in a cheerful and readable manner. Many other writers on Natural History have achieved great successes in the way of popularity (such are B——, W——, C— —, P——, and a host of others), but they invariably convey to the mind of the educated reader the idea—fallacious of course—that they know nothing of the subject on which they write so agreeably. With Mr. Atkinson it is exactly the reverse; the naturalist accompanies him page by page, line by line, and turning his thoughts inward into the treasure-house of his own experience, verifies fact after fact, and knows that the statements are true, knows the life-history of each creature is faithfully told, knows that the living being sat for the portrait Mr. Atkinson has drawn. This is as it should be. Yet there is a peculiarity in Mr. Atkinson's style which were more honoured in the breach than the observance. The very title of "Walks and Talks" leads you at once to anticipate conversations between schoolboys, and I well know that their phraseology is not very studied or very elegant when boating or birdsnesting or cricketing is the theme; nay, more than this, I acknowledge that such expressions as those which follow are very likely to be heard. "Mind your eye," "I'm blest if I don't," "That chap means mischief," "Big enough and strong enough to tie poor Horndern in a knot," "I thought you couldn't come it again," "Look out for your pins," "Show a chap a dodge or two," "Run precious deep into his hand," "By Jove, I expected something of this sort," "How the deuce did he contrive," "By Jove, it is sprung," "The deuce you did," "The sneaking rascal," "The mean hound," "I'd break every bone in his body." These all occur in five consecutive pages, and admitting how likely they are to have been uttered *vivâ voce* in the hearing of Mr. Atkinson, is it desirable to print them for the perusal of other schoolboys who may happily be ignorant of such expressions? Mr. Atkinson calls this a "book for boys;" is it well for a clergyman to instruct boys in phrases which no sensible man would desire to hear, much less repeat? Boys themselves are especially sensitive on this point, and no boy of gentlemanly feeling likes to have such peccadilloes recorded against him. I speak from positive knowledge when I assert that boys, on meeting with these expressions in Mr. Atkinson's works, have used still stronger expressions in condemning them, but expressions which must not appear in the 'Zoologist.'

I have said that the Natural History of these works is good; it is perfectly reliable, and often, which is a very great merit, original, the result of careful observation, the work of a mind knowing not only how to observe but what to observe. The instructions in entomological lore are perhaps rather out of date; the process of taking an impression of a butterfly's wing in gum water reminds me of a heirloom of great antiquity still in my possession, but Mr. Atkinson is an ornithologist rather than an entomologist, and his instructions about birds may safely be trusted.

Most earnestly do I hope that these works, which must meet with extensive circulation, will eventually appear before the schoolboys of Britain in a style more calculated to elevate than to depress the standard of excellence in the "schoolboy" mind. Educate a boy in the belief that he is eventually to become a man; point out to boydom that there is an *excelsior* to be attained; do not reiterate expressions that can call a blush into the honest face of a lad of spirit. If any man who presumes to teach can raise the intellect of others by his labours let him do so, but let him never assume that it is necessary to write *down* to an intellect of lower grade than his own; the attempt to do so conveys something very nearly approaching an insult.—*Edward Newman.*

Bush Wanderings of a Naturalist, or Notes on the Field Sports and Fauna of Australia Felix. By AN OLD BUSHMAN. 272 pp., 12mo. London: Routledge, Warne and Routledge. 1861.

WHY Mr. Wheelwright should adopt a pseudonym, in his very interesting and graphic accounts of a sportman's life in Australia and Sweden, is very incomprehensible. I trust he will abandon this course, and allow the name of an honest Englishman to supersede the *nom de guerre* that he has adopted, just as "Dickens" has superseded "Boz." In this most readable and most reliable volume there is a larger amount of information concerning the furred and feathered tribes of Australia than in all the other works that I have read on the same subjects, but at the same time I cannot overcome a feeling of dissatisfaction engendered by the constant want of precision in expression. I will exemplify my meaning by quoting the opening lines of the work.

"The kangaroo (the koorah of the natives) may be called the Australian deer, and, being the only large wild animal of chase in the country, deserves something more than a casual notice. Of the large kangaroo I fancy we had two distinct species in our forests, and a smaller variety called the wallaby, of which animal I believe there are several species, although the common wallaby is the only one met with in the Western-port district."

Here we have the kangaroo called the "Australian deer," and are told that there are two "species" of kangaroo, besides a "variety" called the wallaby, and of that "variety" there are "several species." I need scarcely tell the readers of the 'Zoologist' that the kangaroo is not a deer, that the kangaroo and wallaby are of distinct "genera," Macropus and Halmaturus, and that of each "genus" there are many "species."

Readers unaccustomed to the precision required in Natural History can form little idea of the confusion caused by this want of care in the choice of terms. The description of the leg of the kangaroo as "three-jointed" is equally unsatisfactory, and shows how necessary it is for the naturalist to study the elements of the science before he begins to publish. The work as that of a sportsman would have been much more acceptable; all the sporting passages are graphic and reliable, and I regret that the author has ventured on the task of blending science with the sports of the field; the capability of doing this effectively is a rare possession. So much for criticism; now for quotations.

"In habits the kangaroo much resembles both the sheep and the fallow deer. Timid and shy, their senses of sight, hearing and smell are most acute. Like the hare, they appear unable to see an object directly in front of them when running; at least I have often stood still and shot one down as it came running straight up to me in the open forest. It is not a ruminating animal, and the four long front teeth, two in each jaw, are sharp, flat and double edged, peculiarly adapted for cutting or browsing; and the thick blunt crushing molars betoken a purely herbivorous animal. They are very gregarious, and are always to be met with in smaller or larger droves. I have often seen as many as a hundred and fifty in a drove, and our general mobs used to average fifty or sixty. After the rutting season the old men will often draw away from the mobs, and retire by themselves to the thickest scrub. Each drove frequents a certain district, and has its particular camping and feeding grounds. The mobs do not appear to mix, and when the shooter once obtains a knowledge of the country he has no difficulty in planting himself for a shot.

"Their camping grounds are generally on some open timbered rise, and they have well-trodden runs from one ground to another. They feed early in the morning and at twilight, and I also think much by night. I fancy we might have shot them at night by a fire of dry wood lighted in a long-handled frying-pan, after the manner of torch-shooting in America; and this plan would also succeed with opossums on a dark night; but the difficulty would be to find the right kind of wood out here, for I know of no resinous trees in these forests. A good bull's eye lantern might perhaps answer. The kangaroo lies up by day during the hot summer weather in damp thickly-scrubbed gullies, in the winter on dry sandy rises. Here, unless disturbed, they will remain quiet for hours, and it is a pretty sight to watch a mob camped up, some of them playing with each other, some quietly nibbling the young shrubs and grass, or basking in the sun half asleep on their sides. About Christmas the young ones appear to leave their mothers' sides, and congregate in mobs by themselves. I have seen as many as fifty running together, and very pretty they looked. The kangaroo is a very clean animal. Both sexes seem to keep together, and, except in the rutting season, when desperate battles take place between the old males, they appear to live at all times in a state of domestic felicity.

"As far as I could see the sides run pretty equal. Like sheep they can be driven in almost any direction that suits the driver, and a good driver is half the battle in kangarooing. It is next to impossible to turn a mob of kangaroo when fairly off; they may divide, but they will keep on the way they are heading. Like sheep they always follow a leader. Their principal food appears to be the tender sprouts of small shrubs and heather quite as much as grass, but there is a small kind of spike grass, brown on the under side, called the kangaroo grass, to which they are very partial. They will also come at night into the small bush inclosures, and nibble off the young blades of wheat, oats, &c. I often fancied they might be kept out of such places by encircling the fence with sewells, which we used when deer-shooting in the forests at home. These sewells are long lines of pack-thread, with two white feathers tied crosswise on the line, about a yard apart, strung up a yard or four feet from the ground on sticks. I never knew a fallow deer face them. I think we might have used them with good success in driving kangaroo, but until the game becomes scarce and more valuable the hunter will rarely go out of the old-fashioned routine to procure it. Although the kangaroos feed off the ground, they do not always appear to use the fore paws as a support, but crouch down. I have only now and then observed them browsing off the trees in a standing position, and I wonder we do not oftener see them feeding in this manner, for which their upright posture and fore arms seem peculiarly adapted. When in confinement they will eat bread, of which they seem very fond, holding it in their fore paws and nibbling it like a squirrel. They are very subject in the bush to tape-worms, and I have taken dozens out of the stomach of one which I have been cutting open. Like the sheep they can go a long time without water, and I never could detect them frequenting any particular water holes at night for the purpose of drinking. I have known their camping places on some of the plains miles away from any water hole. They appear to keep much in the neighbourhood of cattle. The kangaroo is altogether a very domestic, interesting, inoffensive animal, and I often regretted that we had no better or wilder substitute for the red deer in this country. As most of my readers are probably aware, the kangaroo, like nearly every other animal indigenous to Australia, is 'marsupial,' *i. e.*, the female is provided with a pouch outside the bottom of the stomach, in which are the teats, to one of which the young fœtus is attached during the period of gestation, I believe about sixty days, and when fully formed, as soon in fact as the young one begins to live, it becomes detached from the teat, which now supplies it with milk. When the young one leaves the teat it is in an equal state of development to the new-born offspring of any other animal; in fact, this pouch appears to be the womb of all these marsupial animals, and not, as many suppose, merely a place of refuge in which the old mother carries her young. Here the young one at first principally lives, till able to run at the foot of the mother; but even then, when danger is near, it tumbles head over heels into the pouch for protection, and it is wonderful how quickly the old doe can pick up the joey when running at full speed, and shove it into the pouch, its pretty little face always outside. There she carries it till hard pressed, when the love of life overcomes the love of the mother, and she then casts it away to save herself. This in bush phraseology is termed 'dinging the joey.' I once saw an eagle hawk chasing a doe kangaroo, with a heavy joey in the pouch, through the forest. The cunning bird kept stroke for stroke with the kangaroo, which it hardly dare attack, but it well knew, as soon as the old mother became exhausted, she would cast away the young one. Two ounces of kangaroo-shot from my gun, however, stopped the eagle's gallop. I might have killed the old kangaroo as well, but had not the heart after seeing the struggle she was making to save the life of her offspring."—p. 7.

The following passage, relating to the dingo, places that animal in a very unfavourable but doubtlessly truthful light; the moot question of his origin is wisely left in *statu quo*; our author is not the man to clear up a matter so surrounded with difficulty.

"The wild dog, warrigal or dingo, is met with in all the thick forests, deeply-scrubbed gullies, in belts of timber bordering on the large plains, and in patches of tea tree, on the plains themselves ,throughout the whole country, of course commonest in the most unfrequented districts, and is the only large wild animal of prey at present known in Australia. Shy and retired in its habits, the wild dog is rarely seen by day unless disturbed, lying up generally in thick patches of tea tree scrub till evening sets in, when, like the wolf and fox of the old world, they roam abroad in search of prey. In habits the wild dog appears to resemble the European fox much more than the wolf. Its shape, colour and general appearance is that of a fox, although much thicker and larger, and the colour is generally brighter red, but the pricked ears, sharp nose, bright eye and thick brush, all strongly remind us of 'old Reynard.' It is, however, taller and heavier, and altogether a much bolder and finer looking animal. The colour is usually light red, but there is a beautiful variety, nearly black, which is, however, rare, and, like the black fox of Northern Europe, only occasionally found in a litter of red cubs. The cry of the wild dog at night is a long dismal howl, very much resembling the horrid cry of the Swedish wolf, echoing through the forests, making 'night hideous,' and sometimes a small pack would come sweeping by our camp fire at night after kangaroo, and the chorus was then very fine when all else was still. The wild bitch brings forth from four to six cubs, like the domestic bitch, generally in a large hollow log or old tree root. Unlike the wolf they rarely hunt in large packs, and if by chance four or five are seen together, I fancy it is an old bitch and her cubs; I have, however, heard stock-riders say that they have sometimes seen a large drove congregated over a dead carcase on the plains up country. They appeared to be much more common in our forests during the winter than in the summer, and this is also the case with the northern wolf. We had no lack of them on the kangaroo ground, attracted, doubtless, by the carcases that strewed the forests; and if we ever left a dead kangaroo out at night, it was pretty sure to be half eaten by morning. I believe the wild dog was never known to attack man. Their chief food appears to be kangaroo, sheep, all bush animals, and offal and birds, and when kept on the chain they are 'death upon' any fowls which come within their reach. They are a fearful scourge to the settlers on the large sheep runs up the country, for, strictly as the fold may be guarded at night, a wild dog or two will occasionally creep in and kill and maim many of the sheep, for, like the common dog which takes to worrying sheep, they will bite and tear perhaps a dozen to every one that they kill; and this is not the worst, for the sheep will often break fold, and, frightened to death, scattering themselves over the bush, may not be recovered again for days. There is a kind of venom attached to the bite of the wild dog, for the wound always festers, and sometimes mortification takes place: the bush remedy is to rub a little salt into the bitten part. Like the Ishmaelite of old, every man's hand is against them; they are shot, snared and run down by kangaroo dogs whenever they can be met with, but the most certain way of getting rid of them is by poison. Take a small piece of meat, cut a slit in it, and insert as much strychnine as will cover the end of the blade of a penknife; hang it up by a string to a twig about a foot or eighteen inches from the ground. The dog never goes far to die after taking this bait, but they will carry arsenic a long way. They are difficult to shoot, being very wary, and there is no regular method of hunting them carried on here; what are killed are shot, worried by bush-dogs or poisoned.

"The wild dog will often breed with the tame bush-dog, and the cross is generally larger and savager than the original breed. I recollect one morning, about daylight, going out of my tent and seeing a wild bitch with all our dogs playing round her. She made off into the forest when she saw me. One of our dogs followed her, and came back after three days bitten all to pieces. The wild dogs are cowardly by nature, but when brought to bay they make a hard fight of it, and it will give a good bush-dog all his work to do to kill one single-handed; they snap like a wolf. When the distemper raged so fearfully a few years ago among the domestic dogs out here, it extended also to the wild dogs, and scores were found dead in the bush.

"Although called the untameable dog of New South Wales I have seen them to all appearance as tame as the domestic dog, and I knew a shepherd who had one which followed him about like a sheep dog. But they are never to be trusted, nor do I fancy that they can ever be made of any use to man, either for guarding or any other purpose. The only bark I ever heard one utter was a kind of 'gap, gap,' after a long howl."—p. 35.

I search in vain for original notes on the Ornithorynchus or Echidna; our author dismisses them in a very cursory manner, which is the more disappointing as we look for original information concerning these little-known animals from every competent observer who takes up a pen. I pass on to a graphic passage on duck shooting by night.

"Of all the field sports in this colony I think I like a good night's flight shooting the best. There is a charm in this silent, solitary sport which I could never find in any other. When seated well in the shade, by the side of some favourite feeding-ground, with the moon just on the wane, all is still, save the occasional cry of some night bird as it rises from the neighbouring swamp, or the whistle of the wings of a pair of ducks as they pass overhead, and the croaking of hundreds of small frogs in concert, the deep clock of the bull-frog joining as it were in bass accompaniment. The slight ripple of the clear water dances in the moon's silvery rays, when all at once 'whish,' a splash in the water and a sharp 'quack, quack, quack,' warns the shooter that a black duck has pitched, and the concert of frogs is hushed in an instant. This is soon joined by others, and having risen on the water three or four times to shake their feathers, and chased each other aboutf or a few minutes, they settle down to feed. Now is a moment of breathless suspense to the shooter. The gun is quietly raised, but the birds at first are too far off or not well packed; however, at length he gets three or four in a line, and the heavy boom of the gun breaks the stillness of the night, reverberating over the swamp with a hundred echoes. It may be that some scores of birds were feeding on the lagoon out of sight, which now rise like a clap of thunder, and the air is disturbed by the wings and the cries of the birds as they fly round the shooter's head. His quick ear can well distinguish the different birds by their varied call-notes,—the soft musical hoop of the black swan, the sharp loud quack of the black duck, the hoarse croak of the mountain duck, the snort of the shoveller, and the shrill call of the teal, are all familiar to him; and as he gathers up his dead birds he hears the ducks pitching again in various parts of the lagoon, giving him promise of a goodly harvest by morning. When the dead birds are collected, the pipe is lit, the gun charged, and he quietly settles himself down in his rushy screen for another shot."—p. 75.

There is a feature of this bush-life in Australia which reveals a sad omission in expeditions that have attempted to penetrate the interior. These have, without exception, been unaccompanied by a sportsman, and thus have suffered the pangs of hunger in a land abounding with the most nutritious food. It is humiliating to imagine the scenes so graphically described in recent narratives, where men of energy, courage and endurance, are represented as in a state of starvation, although the earth may be "full of fatness" and boon Nature spreading around them the most ample feast, to be had for the mere asking. Let me cite a few passages in proof of the abundance of food. "My old mate, Rendall, bagged 1500 couple of quail in one season; 25 couple a day was his general bag."—(p. 107). Speaking of one day's shooting at Mordialloc, the author states that he and a friend "brought home to the tent at night 16½ couple of quail, 3½ couple of scrub quail, 1 rail, 3 couple of pigeons, 11 couple of snipe, 3 nankeen cranes, 1 red lowry, 5 black ducks, 3 shovellers, 3 coots, 2 black cockatoos, 2 moorhens, 7 shell parroquets;" in all 95 birds, and most of them excellent as food: the author states apologetically that he does not give this list "as anything extraordinary; he has no doubt it has often been beaten. * * * It will, however, give the reader some idea of the varied contents of an Australian game bag."—(p. 101). But the leading animal for food is the kangaroo, and this is indeed noble game. In the introduction the author laments the absence of a market for the produce of his gun, and looks forward to the increase of population as a certain source of gain to the sportsman. Another lament of the author's, by alluding to the decrease of game near towns, bears collateral evidence to its abundance in more remote regions. "It cannot be denied that the game is rapidly disappearing in all the settled districts, especially near towns, and if steps are not taken to prevent the wholesale destruction of the birds in the breeding season, which is now carried on, in a few years the shooter's occupation in Victoria will be gone."—(p. 186). Every paragraph tells the same tale, that the unsettled parts of Australia teem with the most nutritious and wholesome food for man. Here then should be the trust of the explorer; it argues simply a lack of common sense for a man to encumber himself with provisions, and thus impede his onward progress, when the gun, if even one of the party understood its use, would provision the expedition day by day.

And now let me invite the attention of our philanthropists at home to the state of the Australian native. I will place our author's observations, without note or comment, before my reader, hoping they may attract the attention of some member of some Aborigines' Protection Society, and at least elicit a sigh, if nothing more, for the fate of those human beings whom nominal Christians are hurrying to an untimely grave.

"Of the Australian aborigines I have but little to say. They are a race fast passing away, and the few that we do meet with now about Melbourne—in fact in all the settled districts—are very different men from the real Australian native of the last century. There are only two tribes now in the vicinity of Melbourne, and these are but remnants of what they were when we first took possession of their country. The Yarra Blacks, who camp about the ranges at the head of the Yarra, north-east of Melbourne, and the Bomerang or coast tribe, whose head station is at Mordialloc, and who own—if we can use that term now we have dispossessed them of all their land—the country to the southward down to the heads. These, by constant intercouse with the white man, have learnt much of our language and habits, are on capital terms with us, and there is no more danger in meeting a lot of them in the bush than a gang of gipseys at home. The Gipps land tribe seems to be the most numerous in this part of Port Phillip, and these men seem to be wilder and more ferocious than any I have seen. Wherever Government has taken up their land a Black's reserve of, I believe, a square mile is left, and blankets and rations, provided by Government, are served out to them by the master of the station nearest to their reserve. There is also a protector, or kind of magistrate, appointed to look after their worldly interests, but no one seems to trouble himself about giving them any religious instruction. It is not within my province to offer any opinion as to whether or not it is our duty to do so, after, as it were, adopting them. There is a great cry at home about sending missionaries into foreign parts of which we know but little, and yet here we have tribes of savage heathens wandering about among Christians, in the close vicinity of a large city in a rising colony, which is now certainly more like England than any we possess, abounding in religious sects of all denominations, and yet no pains are taken to instruct or convert these poor savages. Perhaps it is not possible to do so. Perhaps they are better off as they are; and this is probably the case, for, as Bonwick justly observes, 'We have a sad tale to tell when we speak of our so-called civilization upon these aborigines.' To adopt our habits they must be entirely removed from the associations of the mia-mia, and what have we to offer in exchange for endearing relations, joyous freedom and an unanxious existence? The black man is thrust upon a competition society to earn his bread, he is exposed to the gibes and contempt of the lowest of our countrymen, he is without sympathy and without friends, and is herded with men from whom he learns the most obviously developed principles of European civilization—swearing and drinking. It is true he eats better food, wears better clothes, and sleeps in better dwellings; but where is his home? Who will be his sister, his mother, his brother? Who will ally herself as wife to his dark skin? Can he ever know the sweetness of a child's love? No! He soon tires of our food, our work, our confined habitations, our heartless ridicule, and hastens back to his camp fire to find a friend, to feel himself a man, to dwell with those that can love him.

"When I camped at Mordialloc I lived on very neighbourly terms with the 'Bomerang' tribe, for they generally had their 'miamies' close to my hut, and as I never made too free with them, or gave them a promise I did not intend to keep, I was a bit of a favourite with them. Like most other savages, they strictly imitate the white man in all his vices, and this tribe is fast paying the penalty, for since I knew it first more than two-thirds have been swept away by disease and intemperance, and in a few years it will exist only in name. It is melancholy to see a whole race of beings thus disappear without any apparent cause. There is no prostration of physical strength or mental activity; they wither in the prime of life, and sink into the grave, as though a blight had fallen on them.

"Of the many thousands who inhabited this colony before the arrival of the white man not two thousand survive, and most of these are on the banks of the Murray. Although debased far below their own savage level, since their intercourse with the white man, the few that are left still retain much of that free independent spirit and wild roving disposition which characterises all savages who have to gain a living by the chase, for, although they can get their rations all the year round at the head station, they never care to live long in one place, but, following up the habits of their early life, make periodical excursions into the bush at different seasons when the different game is in. Thus swan's eggs, kangaroo, ducks, pigeons, eels and cray-fish, all furnish them with food and occupation at certain seasons, and it was but rarely that many of these were on the reserve at one time. I have often remarked, when wandering through these forests, that the Blacks invariably fix upon the prettiest situations for their camping places. I cannot help thinking that the character of the Australian aborigines has been much belied by those writers who have described them as but one degree removed from the brute. I always found them honest and fond of the truth, and although they will ask for anything they fancy, just as if they had a right to it, I never knew them steal."—p. 258.

It is impossible to close this amusing and instructive little book without wishing that its author had been more methodical in his manner, more precise in his choice of words and expressions, more careful to convey exact ideas. Thus we feel doubtful whether many of the terms our author employs express his meaning. Is Australia that well-watered country which the fascinating description of the night watch by its lagoons seems to imply? Are these beautiful lakes with their pellucid waters permanent or seasonal? I have many correspondents who speak of mud-holes in the rainy seasons, of excessive droughts, overpowering dust and scorched earth in the dry season, but not one whose descriptions tally exactly with those of the "Old Bushman." Amid all the inexact and sometimes conflicting evidence there is the most direct evidence of intended truthfulness; he paints, on all occasions, the impressions his mind receives at the moment, but whether other eyes would behold the same objects under the same mental conditions is very questionable. It has been wisely said "that beauty is in the mind of the beholder," and this perhaps affords some clew to the conflicting reports we are daily receiving of that juvenile England known as Australia Felix, a country of which nothing is too marvellous to believe, and whose future is perhaps more glorious than imagination has the power to depict.—*Edward Newman.*

Darwin's 'Origin of Species.'—At page 7594 of the 'Zoologist' we read, relative to the presumed relationship between species, that "If Mr. Darwin could believe he was dealing with plants or animals, instead of inactive mineral elements, he could weave them into a genealogical series more remarkably consistent than the blood affinities he assumes exist in the organic kingdom;" and again, in the same page, his assumed principle "is strikingly paralleled in some unrelated part of creation; for instance, the analogy between the system of arrangement of the heavenly bodies," &c. In all this it is apparently taken for granted that such a thing as relationship between the heavenly bodies on the one hand, and the so-called terrestial elements on the other, is altogether too absurd for belief. But these analogies may be more than analogies,—may be true homologies. Our fifty or sixty assumed elementary bodies may at any moment be reduced to a dozen or fewer; and even if they are not, the bromides, iodides, &c., do indeed form very pretty *family* groups; and despite the "loves of the triangles," the loves of the elements may have yet to be sung. Sexual distinctions are wanting, but the generation of new forms (as water by the union of oxygen and hydrogen) is constantly effected by the union of one or more parental elements. In the planetary bodies the indications of common origin are more striking and conclusive; and there is ample room for believing that our solar system is literally the family of the sun. If the great Creator has willed that from a few simple forms the manifold yet subordinated varieties of heaven and earth should be eliminated, have we cause to wonder that it should please Him to form us thus? Of course I do not attempt to identify Mr. Darwin with the ideas mentioned above: he may or may not hold them; but his theory, I would submit, is applicable, with modifications, to the whole of the known creation.—*W. D. Crotch; Uphill House, Weston-super-Mare, August* 5, 1861.

The Tiger in Amoy.—The tiger is an occasional visitor in the island of Amoy. In a letter from Mr. Swinhoe, dated November 21st, 1859, he writes: —"I have, since my last, met with little of interest except a Royal tiger, of large size, in a Chinese village. I attacked him at close quarters with a fowling-piece, and made him bleed; but to avoid an awkward spring at me I fell down a precipice and nearly killed myself. No assistance being at hand, and the Chinese not daring to come near the beast, I need not tell you that I missed getting his skin. One was killed at Amoy, and I once bought a cub out of three which a Chinese had for sale, but I never met with one of the brutes before in my rambles. I was out after specimens, and was not of course provided with ball, my stock being only shot and cartridges. When I reflect on this adventure it seems a wonder that I was not killed, but a sight of that glossy striped skin emboldened me to try the odds." I sincerely trust that my esteemed friend will admit "discretion" to be "the better part of valour" on any future similar occasion. He writes (Jan. 5): —"Tigers, I am told, are greatly increasing in the neighbouring high hills. The villagers report a number of lives lost, and numerous small cattle carried away." Tigers appear to be very troublesome in the new Russian territory of Amûr, as the following extracts from the 'Journal of the Royal Geographical Society' for 1858 (vol. xxviii.) will show: —"In the same places where the elk is found the tiger prowls; and the latter animal may be called quite common, its constant abode being there. I was informed by some Zolons that there are always a great number of tigers in the mountains on the opposite or Chinese side. During winter they cross the river and seize the horses of the Zolons, who hunt them at that time. * * * The inquiries I made of those few Tunguses confirmed the fact of the tiger being found all over the Hing-gan, especially at its central and lower parts. The population are accordingly prevented from hunting there, as the tiger destroys their horses, particularly during winter. * * * The tiger always follows the fresh tracks of the wild boar, which constitutes its principal food. * * * The inhabitants of both banks of the Usuri are employed in agriculture, which the extent and fecundity of their lands render very successful. They have bred cattle for cultivating their fields, but being often attacked by tigers it is very difficult to keep cattle in any number." See also Atkinson's 'Siberia,' and Humboldt's notice of tigers in Northern Asia, in 'Asie Centrale.' However, they do not quite range to America, albeit the poet Campbell places them on the banks of Lake Erie!

> "On Erie's banks, where tigers steal along;"

nor to Africa, though Sir Walter Scott locates them in "Lybia!" The Russian expedition employed on the survey of Lake Aral found them troublesome, even there, in mid-winter! Here it may be remarked that tigers appear to be fast multiplying in Penang, where notices of the occurrence of this animal have several times appeared in the journals from the middle of 1859. In the island of Singapore, where they are now so numerous and destructive, they made their first appearance five or six years after the establishment of the British settlement; and but three or four years ago Dr. Oxley wrote:—"The channel between Penang and the main is two miles broad; and this has been sufficient to exclude the tiger, for although there have been examples of individuals having crossed over, it has been in an exhausted state, and they have been immediately destroyed." Since this was written the tiger would appear to have fairly established itself on the island. In another communication, dated December 8th, Mr. Swinhoe notices two other species of Felis. He remarks:—"A wild Felis is found in Hongkong marked like the domestic cat, but much larger; and an animal known to Anglo-Chinese as the 'tiger-cat;'" from the description sent, evidently F. macrocelis, or F. macroceloides if this be distinct, or an animal very closely akin. A specimen is promised shortly.—*E. Blyth, in a Note appended to a Report on Mammalia transmitted to him by Mr. Swinhoe, of Amoy.*

New Chinese Deer?—Mr. Swinhoe writes:—"A stag has just arrived here from the north, and is in the possession of a gentleman next door to me. It stands nearly three feet at the shoulder, has a short head, and horns about ten or eleven inches long. Its face and over the eyes are black; neck and ears blackish gray. Median line of back black, blending on the sides with blackish chestnut. Legs black, getting gray towards the hoof. Tail and buttocks white." Pretty clearly the Siberian roe (*Capreolus pygargus*, Pallas). But what is the so-called "roebuck" of the Amûr territory, noticed in the 'Journal of the Royal Geographical Society' for 1858 (vol. xxviii. p. 397)? Cervus Wallichii, or a kindred species? "The roebuck," we are told, "is an animal resembling the elk, but has a smaller body, although the head is comparatively larger. Its flesh is savoury and nutritious; but the principal value of this animal lies in its horns, which contain, at a certain period of the year (I think in March), a marrow of peculiar medicinal properties, which is highly prized by the Chinese, who, at the best season of the year, pay as much as sixty roubles (£9 10*s.*) for a pair of good horns," &c. This animal is mentioned in addition to "the elk," the common roe and others. Further particulars of the Chinese deer have been received from Mr. Swinhoe, dated December 8th, 1859. "The skull I sent you," he remarks, "was that of an elderly buck, one of a pair in the possession of a gentleman here. It died while in his care, and its skin was so worthless that I did not keep it. The doe is still alive and in good health, and from her personal appearance I observe that your surmise as to the summer duration of the white spots is quite correct. She has already nearly lost all the white marks. I hear that there are several more of the same species in the possession of a mandarin here, and I intend shortly visiting him to inspect them. As far as I have yet ascertained, the species is purely Formosan; a larger stag, with large branching horns and having a redder coat (*i.e.* summer vesture), replacing it in Shantung and North China. This other species I am assured is also found in Formosa, but this requires confirmation. The small muntjac (*Cervulus Reevesii*), 'kina' of this dialect, is abundant in Formosa, having myself met with it there and seen skins. The other deer-skins shown me on my tour round Formosa were all of the spotted species. You say that no elaphine deer are found, in India, south of the Himaláyas. Let me remark that this deer is from Formosa, where I have seen mountains covered with snow in summer; and it is most probable that these animals are sold by the savages to the Chinese settlers, as in our inland tour over the hills for some forty miles we met none, and the Chinese spoke of them as coming from the mountains, and of their skins as forming articles of barter. We have a Japanese deer at Amoy with horns short and somewhat like those of the Formosan. It is not so elegant as mine, shorter in the legs, about the same height, and of a far more stag-like aspect. This, I doubt not, is the Cervulus Sika of Schlegel; but what our large northern stag can be I have not had the opportunity to ascertain. There are a few of the horns of the Formosan species to be got, which I will try to procure for you."—*Id.*

The Pangolin.—The Chinese, like the natives of India, class the pangolin as a fish, and it is curious that both people approximate it to certain carps. Thus, in India, this animal is known as the jungli-mátch (jungle-fish) or Bán rohi (jungle rohi), in reference to the Rohita vulgaris, or Cyprinus rohita of B. Hamilton. In some amusing notices of Chinese Natural History, published in the 'Chinese Repository' for 1838, p. 48, we find the pangolin thus described:—"The ling-le, or 'hill carp,' is so called, says the 'Pun Tsaou,' because its shape and appearance resemble those of the le or carp; and since it resides on land, in caves and hills, it is called 'ling,' a character compounded of 'yu,' fish, joined to the right half of 'ling,' a high rocky place. It has by some been termed the 'lung-le,' or 'dragon-carp,' because it has the scales of the dragon; and by others 'chuen shan kéas,' or 'boring hill-scales,' because it is the scaly animal that burrows in the hills: the last name is the one by which the creature is best known among the people of Canton. An ancient name is 'shih ling yu,' or 'stony hill-fish,' given to it because the scales on its tail have three corners, like the 'ling kéa,' or 'water calthrops,' and are very hard. This animal, for which the Chinese have as many synonyms as some anomalous perch or Hedysarum, is the manis, pangolin, or scaly ant-eater, and is often seen in the hands of the people of Canton, by whom it is regarded as a very curious 'muster.' They consider it as 'a fish out of water,' an anomaly irreconcileable with any classification; and in the standard treatises on Natural History it is placed among the crocodiles and fishes." Further details are given; but I pass to an amusing description of this animal by the old Dutch traveller Linschoten, translated into quaint old English. He, too, describes it as "a strange Indian fish," caught in the river of Goa; "the picture whereof, by commandment of the Archbishop of that city, was painted, and for a wonder sent to the king of Spaine." He says:—"It was in bignesse as great as a middle-sized dog, with a snout like a hog, small eyes, no eares [the particular species has a small ear-conch], but two lobes where his eares should be; it had foure feete like an elephant, the tayle beginning somewhat upon the backe, broad and then flat, and at the very end round and somewhat sharpe. It ranne along the hall upon the floore, and in every place in the house, snorting like a hog. The whole body, tayle, and legs being covered with scales of a thumbe breadth, harder than iron or steel. We hewed and layed upon them with weapons, as if men should beate upon an anvill, and when we strooke upon him he rouled himself in a heape, head and feete together, so that he lay like a round ball, we not being able to judge whether he closed himself together, neyther could we with any instrument or strength of hands open him againe, but letting him alone and not touching him, he opened himself and ranne away, as I said before." —*E. Blyth.*

The Musk Cat of Shanghai. — So little is known of the Mammalia of China that any contribution on the subject is of interest to zoologists. There is an animal known at Shanghai as the "musk cat," which I suspect is a species of marten unknown to naturalists. It is thus described :—"A beautiful animal, of about the size of the common cat, but longer, in form ; in fact, somewhat resembling the marten, with a long bushy tail, like the brush of a fox. Emits an exceedingly powerful and by no means disagreeable musky odour. Lives in holes of the ground, and also climbs into trees and bushes in search of birds and their nests. Exceedingly destructive to the pheasants when sitting, and is much hunted by the natives for its fur."—*Bengal Sporting Magazine.* Probably identical with the "large marten" of the Amûr territory, noticed in the 'Journal of the Royal Geographical Society' for 1858 (vol. xxviii. p. 424).—*Id.*

Wild Swine in Sumátra.— "A species of wild hog in Sumátra, of a gray colour, and smaller than the English swine, frequents the impenetrable bushes and marshes of the sea-coast; they associate in herds and live on crabs and roots. At certain periods of the year they swim in herds, consisting of sometimes a thousand, from one side of the river Siak to the other at its mouth, which is three or four miles broad, and again return at stated times. This kind of passage also takes place in the small islands, by their swimming from one to the other. On these occasions they are hunted by the Salettians, a Malay tribe residing on the coasts of the kingdom of Siak. These men are said to smell the swine long before they see them, and when they do this they immediately prepare their boats. They then send out their dogs, which are trained for this kind of hunting, along the strand, where, by their barking, they prevent the swine from coming ashore and concealing themselves among the bushes. During the passage the boars precede, and are followed by the females and young, all in regular rows, each resting its snout on the rump of the preceding one. Swimming thus in close rows, they present a singular appearance. The Salettians, men and women, meet them in their small flat boats. The former row, and throw large mats, made of the long leaves of the Pandanus odoratissima interwoven through each other, before the leader of each row of swine, which still continue to swim with great strength, but soon pushing their feet into the mats, they get so entangled as to be either disabled altogether from moving, or only to move very slowly. The rest are, however, neither alarmed nor disconcerted, but keep close to each other, none of them leaving the position in which they were placed. The men then row towards them in a lateral direction; and the women, armed with long javelins, stab as many of the swine as they can reach. For those beyond their reach they are furnished with smaller spears, about six feet in length, which they dart to the distance of thirty or forty feet with a sure aim. As it is impossible for them to throw mats before all the rows, the rest of these animals swim off, in regular order, to the place from which they had set out, and for this time escape the danger; and the dead swine, floating around in great numbers, are then pulled up and put into larger boats, which follow for the purpose. Some of these swine the Salettians sell to the Chinese traders who visit the island; and of the rest they preserve in general only the skins and fat. The latter, after being melted, they sell to the Maki Chinese; and it is used by the common people instead of butter, as long as it is not rancid, and also used for burning in lamps, instead of cocoa-nut oil."—*Bingley's 'History of Quadrupeds.'* I have somewhere read a similar account of the habits of Sus papuensis. Of the large Indian hogs, I am now satisfied of the existence of three well-marked races or species, which are quite as distinct from each other as are the various species of the Archipelago, figured and described by Dr. S. Müller and others. One is the proper Bengal boar, found also in Kuták, which is by far the most powerful, as shown by the entire skeleton, and which has the longest and most formidable tusks of any, the lower commonly protruding from the socket from three to three and a half inches over the curve. It is specially distinguished by the breadth of its occipital plane, which is two inches to two inches and a quarter where narrowest; and by the shortness of the tail, which numbers only thirteen or fourteen vertebræ. This may be distinguished as S. bengalensis, *nobis*. Another is the ordinary S. indicus, *Gray* (S. cristatus, *Wagler*), as noticed by Dr. Gray, from the Madras Presidency; it being found over the whole of India, the highlands of Ceylon, and also in Arakan, but I cannot pronounce on its diffusion further. It is likewise an inhabitant of Lower Bengal, as we have a stuffed specimen of a particularly fine boar of this race that was speared near Calcutta. The domestic pigs of India appear to be mainly (if not wholly) derived from it. The entire skeleton is conspicuously less robust than in the preceding, the tusks less developed, the lower rarely projecting two inches and three-fourths from the socket; the occipital plane, where narrowest, rarely exceeds one inch and five-eighths; and the tail is conspicuously much longer, consisting of about twenty vertebræ. We have the skull of a sow of this race which has the fully-developed tusks of the boar; of course a rare anomaly. The third is the species with very elongated skull and narrow occipital plane (where narrowest one inch only), inhabiting the lowlands of Ceylon, which I have denominated S. zeylonensis, and which may also be S. affinis, *Gray*, from the Nilgiris, mentioned in the 'List of the Osteological Specimens in the Collection of the British Museum,' where S. indicus is cited from the Nepal hills and 'tarai,' and also Malabar. I have no skull of an European wild boar for comparison, but, judging from Blainville's figures, our S. indicus approximates it more nearly than S. bengalensis or S. zeylonensis. In the new Russian territory of the Amûr it appears that "of cattle or horses few were seen, but many swine of a peculiar kind, and fowls." Wild hogs are found at all elevations in the Himalaya, and generally over Asia; those of Indo-China, China, and the Malayan peninsula require to be carefully examined: as many as three species are reported to inhabit the plain of Mesopotamia. Wood, in his 'Journey to the Source of the Oxus,' remarks that, "descending the eastern side of Junas Darah, our march was rendered less fatiguing by following hog-tracks in the snow. So numerous are these animals that they had trodden down the snow as if a large flock of sheep had been driven over it."—*E. Blyth.*

Bats in Aberdeenshire.—Close by one of the finest reaches of the river Dee, and near the hazely brae where the youthful Byron roamed and gathered nuts, are the church and the well of St. Peter. Much is to be met with in that neighbourhood, of interest alike to the naturalist or archæologist, the tourist or valetudinarian; and not a little might be written of these matters here; but the title affixed to this—a paragraph for the 'Zoologist,' suggested by Dr. Kinahan's paper (Zool. 7617) on the bats of Clare—confines the present notice to two species of Vespertilionidæ, and to a locality in which they are to be met with in numbers. Bats are wide spread; but their economy, from their nocturnal flight and the whole of their lives being spent in darkness, is but little known. Even the slightest contribution to the history of their habits will, it is hoped, not be unacceptable. It had for some time been known that the roof of the church of Peterculter, or more correctly that part of the roof which extends from the slates to the lath and plaster of the ceiling, and upwards of six feet high in the middle, was the haunt of bats. A recent ascent was made to this domicile, when a hundred and fifty or two hundred bats were found hanging, chiefly in clusters. At least two species congregate there—the long-eared bat (*Plecotus auritus* of Bell's 'British Animals'), and a smaller one (most likely Vespertilio pipistrellus of the same treatise). The numbers of the former somewhat preponderated. Each species clustered by itself; no mixture of the two was observed. Individuals were seen, in some instances, hanging alone, or occasionally two or three together, but always of the same species. They did not seem to be much disconcerted by the light of a candle, and were easily taken with the hand, one of the invaders carrying off several in his cap and pockets, soon to be set free again, a privilege of which they readily availed themselves, the larger species rising easily on the wing, after a very short scramble, from a flat surface. The power of the smaller species to do so was not observed or tried at the time. The colour of two or three of the long-eared species, in their rusty white fur, had a well-marked difference, in its lighter tint, from the mass. Their bite is more dreaded than dangerous. The temperature was high, and sufficient to make the blood and nervous influence circulate with the greatest force; yet their teeth scarcely abraded the scarf-skin of the fingers. Low in the walls, and at each end of this long and narrow apartment where the bats dwell, there is an air-hole or opening, two or three inches in diameter, cut in the well-known gray granite of the district. They are used by the bats for their exit and entrance. Immediately under these holes there are lengthened mounds of *débris*, showing that on their leaving or entering their abode the bats drop their fœces, and the quantity indicates a long possession by numbers. The church of Peterculter is about being repaired. It is to be hoped, for the sake of the rising school of Natural History in Aberdeen, as well as for the sake of preserving so many animals useful in destroying myriads of insect vermin, that the worthy heritors will not allow architect or craftsman to dispute or interfere with this now prescriptive right of occupancy held by the colony in the upper regions of that substantial fabric.—*George Gordon; Birnie by Elgin, August* 17, 1861.

Birds of Shetland.— I have, unfortunately, little to add to the list of the birds of Shetland. A man was reported to have the skins of three rare birds shot in North Unst, and I visited them, in the hopes of discovering some prize; but the possessor, having already promised them (and even their reversion), was unwilling to display them, and said he had promised not to do so. At last, however, his conscience allowed him to let his daughter show them to us, he standing by; and from the cursory examination I could thus make I believe the three were the pomerine skua, the hawk owl, and the goshawk. Mr. Gatherer, of Lerwick, also informed me that the sand martin and the woodpecker had both been observed near Lerwick. As regards the bridled guillemot, they certainly do not nest apart from the others; nor are the eggs distinguishable; indeed the very bridle mark is variable in individuals. Brunnich's guillemot we could never see or hear of. Dr. Edmonston has previously mentioned that during the breeding season Richardson's skua feeds largely on the berries of the heather, and this we found to be the case last year. It seems probable that the snow bunting may occasionally breed in Shetland, as we heard of a pair or two remaining till the end of June, though we could not succeed in finding any nest. The common skua will soon, I am sorry to say, disappear from the list of British breeding birds: a very few pairs now remain on Hermanness. Dr. Edmonston, at a heavy expense, maintained a keeper for twenty years, and these fine birds increased from three to about fifty pairs. A Swiss collector or dealer, or amateur dealer, or something of that disreputable class, then shot down some sixteen pairs, wounding, at the same time, many others, and since then the eggs have been taken yearly, so that no young birds are hatched; and four or five years will witness their extinction. Mr. T. Edmonston of Booness, the proprietor, allows me to state that he will appoint a keeper, if a fund for the purpose can be obtained; about £5 or £6 would be sufficient, and he has kindly agreed to subscribe £2 himself towards the amount. Any gentleman who would lament the loss of such a bird to our fauna, and does not expect to gain "an equivalent," as collectors say, will perhaps be kind enough to write to the editor of the 'Zoologist' or to myself. — *W. D. Crotch; Uphill House, Weston-super-Mare.*

Destruction of Small Birds: an Appeal to the Farmer, &c.— I invite attention from all who claim as their right an enlightened mind. Who amongst us, as early spring advances, revealing itself to our gladdened sight, after perchance a stern and severe winter, but delights to hear pouring forth, from tree, shrub and every leafy dale, the sweet harmonious carol of our common songsters? There is scarcely an Englishman who does not claim this as his peculiar right. Yet these harmless creatures are daily, hourly and quietly disappearing from our land. In proof of this we have only to notice the ravages of caterpillars among gooseberry and currant bushes this season. Great spaces are made in gardens by these destructive enemies of the gardener, who adopts, as the only apparent means of saving the fruit, the precaution of gathering as fast as possible. It is well known that small birds have been and are ruthlessly and systematically destroyed, quite harmless species sharing the fate of those which may by chance steal a seed or two. To the natural foes that each tribe has to contend with may be added the professional destroyer, whose quack nostrum is advertised in every paper as capable of poisoning large numbers. It must not, in future, surprise farmers, gardeners and others, if insects become formidable in the field and garden, in the absence of those whose natural food is the insect tribe. We learn that our French neighbours have taken up the subject, and that the Senate, after being occupied with a long Report on the lark and sparrow question, requested the Minister of Agriculture to adopt some practical plan for stopping the indiscriminate killing of birds. In the course of the sitting a complete exposition of entomology, in reference to the various insects destructive of the olive, vine, grain, garden crops, &c., was set forth, and State interference on behalf of the winged vermin-hunters urged. The thoughtless man nails a bat, an owl or a crow to his barn door; but a scrutiny of what fills the crops of these supposed nuisances would teach him sense. No senator seemed aware of the efforts made to import and naturalize the common field birds of England in Australia. It appears the Cardinal Archbishop of Bordeaux is at the head of an active movement among his clergy for the protection of birds in the South of France, and the Prefect of Lyons has already denounced birdsnesting by schoolboys on the Rhone. I now adduce a few statistics, either from personal observation or on the authority of naturalists upon whose veracity I can rely. A short time since a boy brought me, as he said, a few small birds to look at. To my astonishment he exposed to view a hundred yellow buntings, something like fifty or sixty common buntings, thirty thrushes, and some hundreds more of perfectly harmless species, being for the most part insect feeders. All these owed their death to that detestable nostrum known as sparrow and vermin killer. Some days since I was not less astounded to see one of those rascals who designate themselves professional bird-killers with a cart load of dead birds, which he, with seeming pride, exhibited as a proof of his skill. I believe it would be no exaggeration to say that this man had destroyed the prodigious number of two thousand sparrows, seven hundred yellow buntings, six hundred common buntings, innumerable greenfinches, and linnets by the hundred. It was a sight I shall never forget. A friend says that in his parish, only a year or so since, the thrush's pleasant song might be heard in almost every copse; now the bir[illegible] almost extinct there. The famed and melodious nightingale is fast disappearing from Cambridge. Who that loves the voice of song but deeply regrets this? Such and worse will follow, if this ruthless destruction is not stayed.—*S. P. Saville; Dover House, Cambridge, August* 13, 1861.

The Kestrel pursuing a Sandpiper.—My son, when fishing in the Tummel, about two miles below Loch Rannoch, on the 23rd of July last, saw a female kestrel attempt to take a sandpiper from the water. When first seen (at the distance of about thirty yards) the sandpiper was on the water about mid-stream, and the feet of the hawk were dropped to seize him. To avoid his enemy, the sandpiper (apparently a young one) dived, rising again in about half a minute, and taking wing from the water, when the kestrel flew off, alarmed by my son's presence. As the sandpiper is not a swimmer, it must have been driven to the water by its pursuer; and it seems singular that a hawk supposed to prey chiefly upon mice, which it takes by dropping upon them much in the manner of the white owl, should thus pursue a swift-flying aquatic bird with the fierceness of the sparrowhawk. The abundance of sandpipers, and the probable scarcity of field-mice in this valley while the crops are all standing, may have had something to do with the fact.—*Henry Hussey; Kinloch Rannoch, Perthshire, August* 2, 1861.

Occurrence of the Shore Lark at Woolwich.—A week or two ago I went into a small bird-stuffer's shop here, and whilst conversing with the owner he informed me that a workman in the dockyard at Sheerness had, during the cold weather last February, shot five specimens of what he called the American lark. Upon his describing them, however, I made out that they could not be that species, being too small, having a crest on the head, and various other distinctions by no means characteristic of the American lark. The man said that the only bird which he thought in any way resembled them was the cirl bunting; so I was somewhat curious to find out what these remarkable individuals really were. In my own mind I set them down as being the shore lark, if any species of Alauda at all; and as my friend kindly offered to get them for me to look at, I did not refuse, and a few days ago called on him again, when he showed me five specimens of Alauda alpestris, *Linn.* So I had guessed rightly. There were apparently two adult males, one female, and two immature or young birds; all, except the latter, in very good condition. There is no doubt as to the fact of the birds being shot in the neighbourhood of Sheerness, as the person who killed them was quite unaware what he had shot, and only skinned them (in not a very scientific manner) because he thought them pretty, uncommon-looking birds. I am not aware if any others were shot in Kent or elsewhere last winter.—*G. F. Mathews; Woolwich, July* 16, 1861.

Occurrence of the Grayheaded Wagtail and Temminck's Stint near Brighton.—On the 27th of last April I shot a very fine adult male grayheaded wagtail, and a few days since a perfect specimen of Temminck's stint, the plumage of which is partially summer.—*Henry Pratt, jun.;* 35, *Duke Street, Brighton.*

Occurrence of the Nest of the Snow Bunting in Shetland.—Some years ago Dr. Edmondston expressed his belief that the snow bunting would be found breeding regularly in some of the cliffs in the north part of this island (Unst); and at his suggestion, therefore, I have carefully searched for their nests this season. My own endeavours have been rewarded only by the sight of several pairs of the birds themselves, b[illegible] man who I employed to assist me in the search has been more fortunate, [illegible]ing within the last week discovered a nest containing three fresh eggs. He found [illegible] in the crevice of a rock near the top of one of the high sea-cliffs at Burrafrith. It is rather shallow, and is composed of coarse dry grass and fibrous roots, lined with wool, and fine hair of horses and cows. The eggs are roundish, and measure nearly an inch in length; in colour white faintly tinged with bluish green, slightly spotted with dark brown and bluish gray.—*Henry L. Saxby; Baltasound, Shetland, July* 10.

Nesting of the Sitta syriaca and Hirundo rufula.—Now that we are on the north side of the Gulf and once more at the foot of Aracynthus, it will be worth while to ascend the mountain a short way, either up the Grand Gorge, or, better still, up the Little Klissoura, to observe a few more of the very singular nests of Sitta syriaca and Hirundo rufula. Scrambling up the dry water-course at the bottom of the Little Klissoura, we may notice in several places the nests of the former plastered to the face of the cliff. Most of these are old, and probably all but one or two inaccessible without a rope. Where the nest does not include a natural cavity of the rock, it is glued very tightly to the face of the latter, being fully exposed without any attempt at concealment, though very difficult to distinguish from the numerous ants' nests, to which in outward appearance it bears a strong resemblance. It has generally a southern aspect. The outside appears to be stuck over with the wings of insects worked up along with the mud composing it, which becomes very hard after exposure. Hirundo rufula is still more singular in its nidification, always fixing its nest under a cave or projecting slab of rock. In the Little Klissoura and throughout the precipices of Aracynthus there are plenty of these caves, in former times a convenient refuge for the Klephts, as they now are for the shepherds tending their flocks during the winter months. This eccentric swallow, not satisfied with having a good dry cave all to himself, must needs construct a long passage to his nest, thus giving it the shape of a retort with the upper part cut away, and the remaining portion glued underneath a flat surface. The entrance is narrow, but the passage gradually widens, till it finally opens into a sort of chamber very warmly lined with feathers: here the little fellow and his mate are sure to be most snugly tucked in just after sundown, when they can't see to catch any more insects. Escape therefore is impossible when a ruthless ornithologist wishes to capture the pair for the sake of identifying their eggs. No more than one pair ever seem to occupy a cave, though the remains of previous nests could occasionally be traced on the roofs. The same pair appear to return year after year; and their nest, unless injured by shepherd boys during the winter, will merely require a little touching up to render it again habitable. The fact of the same birds returning was proved by these caves being untenanted, where the pair had been captured during the preceding year. Several nests with eggs were found towards the end of May and beginning of June, 1859. Four seems about the complement: they are quite white, much resembling eggs of Hirundo urbica, which could be well passed off for them in collections.—*W. H. Simpson, in 'Ibis,'* ii. 385.

Habits of the Standard-wing. — The Semioptera Wallacii frequents the lower trees of the virgin forests, and is almost constantly in motion. It flies from branch to branch, and clings to the twigs and even to the vertical smooth trunks, almost as easily as a woodpecker. It continually utters a harsh croaking cry, something between that of Paradisea apoda and the more musical cry of Cicinnurus regius. The males, at short intervals, open and flutter their wings, erect the long shoulder feathers, and expand the elegant shields on each side of the breast. Like the other birds of Paradise, the females and young males far outnumber the fully plumaged birds, which renders it probable that the extraordinary accessory plumes are not fully developed until the second or third year. The bird seems to feed principally upon fruit, but it probably takes insects occasionally. The iris is of a deep olive; the bill horny olive; the feet orange, and the claws horny. I have now obtained a few examples of apparently the same bird from Gildo; but in these the crown is of a more decided violet hue, and the plumes of the breast are much larger. — *A. R. Wallace, in 'Proceedings of the Zoological Society,'* 1860, p. 61.

Young Cuckoo Fed both by a Song Thrush and Hedgesparrow.—A curious and interesting fact came under my notice a few days ago at Catteshall, near Godalming. A young cuckoo had been caught in the garden and confined in a wicker cage, in which it was fed by a song thrush and a hedgesparrow, both of which birds had continued their attentions for about a fortnight, when the thrush abandoned the foster child to the exclusive care of the hedgesparrow. I have since learned that some juvenile thrushes had been confined in the same wicker cage, so that the thrush possibly supposed she was administering to the wants of her own progeny.—*Edward Sweetapple; Hurstbourne Mill, Whitehurst, Hants, July* 6, 1861.

On Certain Changes in the Plumage of the Pheasant.—A good deal has been previously written on those singular changes of plumage which are remarked in old specimens of females among the pheasant and other gallinaceous tribes, attributable in ordinary cases to the effect of age, sterility or other changes of constitution. In two instances within my experience a female of the wild breed of duck (*Anas boschas*) has assumed the plumage of the drake, one of which specimens will probably be exhibited to the Naturalists' Club on the occasion of this paper being read. Both these examples were known to be birds of considerable age. I shall not dwell longer upon these phenomena in the case of females, further than to state that I have sometimes, though rarely, observed in female pheasants, where no change of plumage had occurred, another attribute of the male sex in the appearance of spurs. These are always short, and more commonly are found only on one leg, but they are strong and sharp. A specimen shot last week of the hen pheasant, with the spur on both legs, is now in the hands of Duncan for preservation. These instances are more rare than that change of plumage which constitutes what is generally called by sportsmen "a mule bird." But besides these cases I have recently noticed in many instances a change in the plumage of the male pheasant, which, as far as I know, has never yet been described by naturalists. This change is the converse of the former. In these cases the cock bird partially acquires the plumage of the hen. In a very peculiar example now before me, which was shot here some twelve or fourteen years ago, the scapular feathers, the wing coverts and the whole wing, the tail coverts and the tail itself, precisely resemble the female, and exhibit none of those brilliant colours and distinctive markings with which we are all familiar in the matured plumage of the cock pheasant. The plumage also of the belly is pale, and flushed with gray feathers. The bird, however, was killed at the end of the winter, when the plumage is in the highest order. It was quite alone, and at a distance from any of the coverts, as if it had been banished from society. Singular to relate, its very spurs partake of the character of the female, resembling rather those of an old domestic hen than the true attributes of the cock pheasant. It is a bird of great size, with a large allowance of the bare red skin round the eyes, a distinction which in no case is ever observed in the female, even where, in all other respects, her plumage has become that of the male. The description given of this individual specimen may be received as common to all these "androgynous" mutations, of which a great number have presented themselves to my notice in turning out the bags of the present season, in which scarcely any young birds escaped the disastrous storms of cold rain during the last summer. Every one of the more recent specimens were evidently birds of great age, and, unlike the example described, they all possessed very long and sharp spurs. Several gradations of plumage were observed, some partaking more, others less, of the female character.—*Right Hon. Lord Ravensworth in 'Transactions of the Tyneside Naturalists' Field Club,' vol.* v. *part* 1, p. 38.

The Chinese Bustard, &c.—There is a Chinese bustard well known to sportsmen from Amoy and also to the northward, but which has not yet been systematically described, so far as I can learn. The following notice of it is from the 'Bengal Sporting Magazine:'—"A species of bustard, somewhat like the common mottled English turkey, only smaller. These birds are generally found singly, at least during the time we were there (November and the winter months being the season in which we beat for them): they are exceedingly shy and difficult of approach, and are usually found in the long grass and fir-clumps; they seem to rise with difficulty, running a considerable distance preparatory to their taking wing, during which time they call and cackle, which seems extraordinary, as they are generally found as odd birds." Mr. Swinhoe is well aware of the existence of this bustard, but hitherto has been unable to procure a specimen, on account of the estimation in which it is held for the table. For the same reason, comparatively few skins of bustards are preserved anywhere, especially of the larger species; and so it happened that the great bustard of Australia, though met with even by Cook, and repeatedly mentioned by Flinders and other early navigators, remained unknown to European naturalists until Mr. Gould's visit to that country! Captain Cook, it may *not* be remembered, on his first voyage, proceeded northward from Botany Bay, landed a second time on the continent of Australia, a little to the south of the Tropic of Capricorn, and there he shot "a kind of bustard weighing 17 lbs.," and named the landing-place Bustard Bay! From a notice published in the 'Journal of the Royal Geographical Society' for 1858 (vol. xxviii. p. 148), it appears that, "Of birds, the black and the white cockatoos, bronze-winged pigeons of various kinds, and the bustard (or 'wild turkey' of the colonists), were all found in the valley of the Victoria, but they were all much smaller than their kindred of the south." Probably, therefore, distinct species, according to the common acceptation of the phrase, or such as would be figured as different species by Mr. Gould. In a collection of Chinese paintings of birds, among numerous species at once recognizable, was one of a very fine Bonasa, or "ruffed grouse," as yet undescribed. The collection referred to was taken to England by the late Viscount Hardinge.—*E. Blyth.*

Note on Struthionidæ. — In the 'Conspectus Ineptorum et Struthionum' of the late Prince of Canino, published in the 'Comptes Rendus,' tom. xliii. p. 840-1, only one species of Casuarius is recognized, but a second Dromaius or Emeu, as Dromaius ater, *Vieillot*, from "l'Isle Decrès," which would appear to be already extinct; while a third species, from the interior of Australia, with transversely barred plumage, has recently been brought to the notice of the Zoological Society. He also indicated a second ostrich doubtfully, as Struthio epoasticus, *C. L. Bonap.*, which is doubtless the northern race with smooth and poreless egg-shell. The two living species of Nandou, or Rhea (the threetoed American ostrich), are of course recognized; and at least three, if not four, living species of Apteryx; with no fewer than thirty-eight species, more or less satisfactorily made out, of Inepti and Struthiones of various zoological epochs; but the knowledge of the greater portion of these is vague in the extreme, and the Prince's bold attempt at classification of them will simply, as such, meet with approval. At the head of the Inepti he places the huge Epiornis of Madagascar, a fragment of the egg-shell of which I have recently received from M. Zill. This giant bird appears to have been first indicated (to Europeans) by the missionary Ellis, though not scientifically brought to notice. The natives of Madagascar imagine that the eggs of the Epiornis are those of some huge Saurian. —*Id.*

Notice of the Breeding of the Tufted Duck (Anas fuligula) *in Northumberland.*— In the year 1858 Sir Walter C. Trevelyan, Bart., informed me that a small duck had reared its brood, consisting of eight or nine, on a pond near his house at Wallington. Sir Walter again informed me, in the early part of the following year, that the same sort of small duck which had bred at Wallington the previous year was on the pond again. During May of the same year, I paid a visit to Wallington, and immediately on my arrival I strolled down to the pond to ascertain if possible what species of duck it was. I was not there many minutes before I observed two small ducks on the water at the far side of the pond. With the aid of a small telescope I soon discovered that they were tufted ducks. The male was in full plumage; he carried his flank feathers quite over the wing, which gave him a very odd appearance, in fact the white almost met over the back. It was clear that they were also breeding this year, for they would not leave the water unless driven from it. I remained at Wallington from the 24th of May till the morning of the 28th, and during that time made many searches to find the nest, but without success. I had the satisfaction, in company with Sir Walter and Mr. Wooster, of observing the birds each day. The pond is surrounded with high trees, and between the trees and the water's edge there are clumps of rhododendrons and other evergreens. At day-break of the 28th Mr. Wooster and I visited the pond for a final search before I left. We thought by going early we should surprise the duck on the eggs if she were sitting. We were disappointed, however, to observe her swimming about as usual with her mate, and were therefore perfectly satisfied that she had not yet commenced to sit. I left, however, quite assured that I should soon have the satisfaction of hearing from Wallington that the nest had been found, as it was evident, from the limited nature of the locality, it must be ultimately discovered. Accordingly, on the 21st of June, I received a letter from Sir Walter, stating that the tufted duck's nest had been found, and I cannot do better than quote the letter, which is as follows:—"I will to-morrow send you, by carrier, an egg of the tufted duck, whose nest we have at last found, with nine eggs in it; it is among sedges and willows, made of sedges, and a slight lining of down. The male disappeared about a fortnight ago, and left his mate to bring up her family alone, as she did last year, when he was never seen, and I hope she will succeed as well this season, and that we may look for more of the family to breed with us another year." I had afterwards the satisfaction of seeing the nest; it was placed on a small island, near the middle of the pond. Last year (1860) three made their appearance on the same piece of water—one male and two females. I was at Wallington from the 17th to the 19th of May, and saw them all three, but could not find the nest. This is not the first account given of the tufted duck breeding in England. In the 'Zoologist' for 1850 (Zool. 2879) is a notice of a brood in Yorkshire, and in the 'Zoologist' for 1854 there is also an account of of the birds nesting at Osberton, in Nottinghamshire. My friend, Mr. Alfred Newton, of Elveden, says in a letter which I had the pleasure of receiving from him, that "in 1851 my brother Edward and myself were staying with our cousin, Lord Galway, at his place in Nottinghamshire, and the bailiff, a most intelligent man, told us of a pair of tufted ducks which, for the last two or three years, had frequented the water there (at Serlby), and hatched their young on an island." Thus, it appears, we have four well-authenticated instances of the tufted duck breeding in England.—*John Hancock, in 'Transactions of the Tyneside Naturalists' Field Club, vol.* v. *part* 1, *p.* 40.

The Cormorant out for a Tour.—I have this day been favoured with the sight of a cormorant, which, strange to say, was shot at Ten Stanton, Huntingdonshire, by Mr. Mosely. This denizen of the sea was resting upon one of the above gentleman's out-buildings, and so odd a bird created, as might be expected, some little speculation and wonder. It was sitting in an upright position, and its entire contour presented something particularly unusual to persons not versed in Ornithology, coupled with the situation being distant from the sea some hundred miles. I have myself known of similar instances of the cormorant being shot inland, but in every case during a tornado or in the winter months. This specimen is a last year's bird.—*S. P. Saville; Dover House, Cambridge.*

Occurrence of the Hawk's-bill Turtle (Testudo imbricata) *at Banff.*

By Mr. THOMAS EDWARD.

I HAVE just had the very great pleasure of receiving, from the Right Hon. the Earl of Fife, a magnificent specimen of the above reptile, accompanied by the following note:—

> "Caught in a stake-net about three miles from Mount Duff, on Monday, July 29, 1861.—To Mr. Edward, Banff, with the Earl of Fife's compliments.—Duff House, Tuesday, July 30, 1861."

On inquiry I find that the place where it was taken is called Greenside, a spot not far from the promontory known as Gamrie Mhor, and is on the Earl's property. From this latter circumstance, I believe, and from the novelty of such a creature being taken there, it was at once despatched to his Lordship by the overseer of the fishings. It was alive when found; and the fishermen were not a little astonished at their capture, which they concluded to be a "monster tortoise." His Lordship too, I believe, was not less surprised than its captors, and expressed himself highly delighted with his present. For myself I cannot sufficiently express my estimation of the gift, or my gratitude to the noble donor for his kindness.

I never saw this species before; but I believe the present specimen to be in every way a very good representative of its race, and as such I venture to give a very brief summary of its appearance and dimensions:—

Above the shell is of a fine mahogany colour, with lightish streaks or veins throughout the whole of the plates, which give it a marbled appearance. The animal itself, or at least that portion of its skin which is seen from above, is mostly of a brownish tint; underneath it is altogether of a most beautiful yellow, as also are the sides of the neck. The mandibles, if I may so speak, are of a horny hue and texture, and are very strongly and very thickly serrated. Shell 15 inches in length, 10 in breadth; of course it tapers considerably towards the extremities. Fore fin 10 inches in length; breadth from the tip of the fore fin to that of the hind fin 27 inches: hind fin 5½ inches in length, 15¾ in breadth. Head 4 inches in length, 10½ in girth; neck about the same dimensions. Tail about 2 inches in length.

This is the first specimen of the kind I have had an opportunity of dissecting, and I must say that I was well repaid for my labour. I will not trouble the readers of the 'Zoologist' with details of the dissection; but there is one thing to which I wish to call attention. From what I had read I expected to meet with some cartilaginous protuberances in the throat; but on examining this purse-like passage I was surprised to find it, from the entrance to from four to five inches down, very thickly and very strongly beset with ivory-looking spines, inclined downwards, but movable in any direction. I expected to find a rough passage, but had no idea of meeting with such a host of long, thick spikes, most of them being about an inch in length, and all as sharp as pins, the points having a coppery look.

Has this species ever been met with before in the British seas? and if so, when and where? I should feel greatly obliged for information on the subject.

THOMAS EDWARD.

Banff, August 1, 1861.

PS.—I learn that another specimen of the above species has been taken, also in a salmon-net, at a place called Pennan. Pennan is in Aberdeenshire, and only a few miles from where the first was caught. This one, I believe, has been kept alive, and its captors are astonishing the natives, who are flocking from far and near to see the "rare fish."—*T. E.; August* 17.

On a Spider (Nericne errans) *inhabiting Coal Mines.*—During the commencement of last year my attention was directed to the immense sheets of web-like material which abound in the "waste" or old workings of the Pelton Colliery. These webs attain a most gigantic size, some of them having been seen upwards of twenty or thirty feet in length, by four or five in height, and some even more, and they all, in consequence of the coal dust with which they are densely covered, present an opaque blackish appearance. I was informed that they had generally been considered to be the mycelium of a fungus, but not feeling at all convinced of this I determined to subject them to a more rigid examination than they had yet received. For this purpose, in February, 1860, I descended the pit with two of the wastemen, from whom I learned *en route*, and soon afterwards ascertained from actual experience, that, however interesting a subject they might be to the naturalist, they formed most disagreeable impediments to the progress of any one passing through them; these men also assured me that they were, in their opinion, not Fungi, but most certainly spiders' webs, and that furthermore they had often seen minute spiders engaged in spinning them. This fact was completely verified on our arriving at the *locale* where the webs were the most plentiful, as I at once detected on them scores of small spiders, some busily occupied in the fabrication of the webs, and others rapidly dropping to the ground on our approach. By subsequent and more extended observations I remarked that these insects are eminently gregarious, assembling in large numbers to construct fresh webs, or to repair any rents or damages in the older ones, and also that their continual abode in the total darkness of the coal-pit does not seem to have deprived them of their susceptibility to light, as on the approach of the lamps they may be seen scampering about in great agitation, and dropping from their webs to the floor of the galleries. Would it not be an interesting problem to solve, whether, after the total absence of light for several generations, as it must frequently happen, their eyes still retain the same faculty of transmitting the image of objects to the retina as they possessed before their conversion into "miners," or whether their apparent commotion derives its origin from some other sense than that of sight?—*David P. Morison, in ',Transactions of the Tyneside Naturalists' Field Club,' vol.* v. *part* 1, *p.* 49. [The reader is referred to a previous record of Mr. Morison's interesting discovery, by Mr. Meade, in the 'Zoologist' for 1860 (Zool. 7146). —*Edward Newman*].

Note on the Irish Zygænæ.—The remarks of my friend Edward Newman (Zool. 7676), respecting the Irish Zygænæ, will no doubt lead many of the readers of the 'Zoologist' to suppose that M. Guenée has examined a number of specimens, and considers that two species have been confounded under the name of Z. Minos. This is not the case: he has only seen two individuals which I sent him some years since. In a letter to me, dated May 25th, 1861, he says: —"I have examined with great attention an Irish Zygæna which you sent me some time ago, and which I regarded as a simple variety of Z. Minos. The two individuals which I received from you are identical with those which I took in 1858, at Bourg d'Oysaurs (Hautes-Alpes), and also with two specimens which I have received from the mountains of the Tyrol. I am now inclined to regard this Zygæna as a separate species, proper to mountainous countries. It differs from the typical Minos in the border of the inferior wings, and especially by their internal angles, which are tipped with dark gray; by the red spot upon the superior wings, which extends as far as the cellular bifurcation; and lastly, by the body, which is more hairy, and of dark brownish black instead of blue. This Zygæna flies in the open fields of the mountains, and does not appear to seek shady places as Minos does with us. It is known in Germany by the name of nubigena; and although this name is bad, I believe we must adopt it, in order that we may not introduce confusion into this genus, already so difficult." I have thought it right to give the remarks of my friend in his own words. Whether the Irish Zygæna is anything more than a local variety of Minos time may perhaps prove.—*Henry Doubleday; Epping, August* 19, 1861.

Zygæna Minos in Scotland.—You ask (Zool. 7676) for information concerning the occurrence of reputed Zygæna Minos in East and West Scotland. A short time after writing my papers on the geographical distribution of Sphingina, finding Messrs. More and Stainton both very suspicious of the eastern locality, I wrote to the party who had taken the insect (R. Thomson, Viewhill *via* Kairn). He informed me that, not having the 'Manual' when he took the insect, he got a friend to name it, but that it turned out to be only Z. Filipendulæ. About the same time I had two or three letters from Mr. A. Somerville, of 328, Renfrew Street, Glasgow. He had unfortunately given all his Z. Minos away; but he writes: —"When in Oban, in 1854, though not a very scientific entomologist at that time, I met with two species of insects which my brother and I assigned as moths, though one looked more like a Hymenopterous than a Lepidopterous insect. These species were Zygæna Minos and Procris Statices. The former was quite distinguishable from Z. Filipendulæ, having an elongated blotch instead of several spots. The way in which I afterwards found that it was Z. Minos and nothing else that we had found was from the 'Annual' for 1855, which I did not see until some time after it was published; but in the plate for that year I recognize the Oban insect." If you consult the back volumes of the 'Intelligencer' (vol. vi. I think), you will find a note by Prof. Wyville Thomson, of 6, University Terrace, Belfast, stating that he also met with Z. Minos in West Scotland. While on this subject I may mention that I am positive Zygæna exulans will turn up in Scotland some day. It occurs from the Pyrenees to Lapland, and the elevation at which it occurs in South Europe is the same as that of Erebia Cassiope, viz., 6000 feet. I do not think any of the Lapland mountains at all approach that elevation.—*William F. Kirby; 33, Mornington Crescent; July* 31, 1861.

[Believing this to be a fair summary of the existing evidence on the subject, I think every reader will consider it insufficient to establish Z. Minos as a Scotch insect. Z. Filipendulæ occurs in all parts of Scotland, often having the elongated red blotch instead of several spots, and still more often denuded of its scales, and having the semihyaline appearance of Z. nubigena.—*Edward Newman.*]

Larva of Clostera anachoreta. — In my description of the larva of Clostera anachoreta (Zool. 7681) I have said that Mr. Cooper was not aware of the value of his capture until the perfect insect emerged. My friend Mr. Doubleday writes:—"Sidney Cooper was not aware that the insect which he bred was C. anachoreta until, some time afterwards, he saw my specimens of C. curtula, which he said were different from the insect he bred, which therefore was no doubt anachoreta." I exceedingly regret to find that I have annoyed a very liberal entomologist by saying the localities given for this insect were "calculated (if not designed) to lead our assiduous larva-hunters astray." When I wrote this I had no doubt that the vague definition "home counties" was designed to put our exterminating dealers "off the scent,"—a design, by the way, I considered highly praiseworthy. I now, however, most cheerfully withdraw all that I wrote on this species, save and except the description of the larva.—*Edward Newman.*

Description of the Larva of Acronycta Alni.—The larva of this scarce species has an appearance remarkably striking and conspicuous. One was brought me on the 3rd instant. It was found reposing on a leaf of the common dock by the road-side, under a hedge the principal part of which consisted of sloe bushes, in an open part of the country, where the trees were but few and far between and vegetation in general exceedingly scant; about as unlikely a spot, altogether, to produce the species as could well be conceived, the nearest wood—in which, by the bye, I took a specimen of the perfect insect at sugar five years ago, a fact recorded in the 'Intelligencer' for 1856, p. 109—being about two miles distant. Sloe it refused to touch, as well as elm, sycamore, sallow, willow, bramble and wild rose, passed without notice over oak, ash and hazel, but seized upon a leaf of hawthorn, which it began eagerly to devour, relinquishing it to feed on alder, when a leaf of the plant was presented to it. That this, however, could not have been the kind of food it had been subsisting on previously is clear, from the fact that the plant does not occur nearer the spot than at the wood alluded to above. On the 7th it began to spin itself up among the upper leaves of the plants I had placed at its disposal, although a bed of loose mould was underneath in which it might have buried itself had it chosen to have done so. This larva does not appear to be up to any particular dodge on being disturbed, such as falling down as though suddenly attacked with epilepsy, or putting on the semblance of death, but will bear handling without manifesting much uneasiness or exhibiting signs of great annoyance. The head is moderately broad, intensely black and glossy: body intensely black, but not glossy, of uniform size throughout: legs, like the head, glossy black. Down the back a row of large oblong spots, placed transversely, of bright yellow (bordered in my specimen with white). From each side of each segment of the body springs an object, long, slender and flat, more resembling a fine thin strip of whalebone than a hair or bristle, each of which has a spade-like termination; like the head and legs these appendages, which render a mistake in the creature's identity next to impossible, are glossy black.—*S. Stone; August* 10, 1861.

Occurrence of Leucania Elymi in England. — The Leucania announced on the wrapper of the 'Zoologist' has been identified by M. Guenée (to whom Mr. Doubleday was kind enough to send one of the specimens I captured) with Nonagria Elymi of Treitschke. I must beg to say that the honour of first capturing the insect in England is due to Mr. Winter, though I believe he only preceded me by some three or four minutes. Its habits are very retired, and I saw none at dusk, though its light colour would render it conspicuous. — *G. R. Crotch; Weston-super-Mare, August* 21.

Description of the Larva of Miselia Oxyacanthæ.—Does not roll in a ring or feign death when disturbed. Crown of the head slightly notched; body cylindrical, but exhibiting the segmental divisions very manifestly: back of the 12th segment raised, but scarcely humped, bearing two pairs of small warts, the posterior pair wider apart and rather larger than the anterior pair: colour brown-gray or red-brown, very dull; the back of each segment has four white dots: belly gray-green, with a conspicuous black median stripe: legs and claspers green. Feeds on Cratægus Oxyacantha (whitethorn), and is full fed by the end of May, when it spins a thick cocoon on the surface of the earth, and changes to a pupa, from which the perfect insect emerges in September and October. I am indebted to Mr. Thomas Huckett for this larva.—*Edward Newman.*

Life-Histories of Sawflies, translated from the Dutch of M. Snellen Van Vollenhoven. By J. W. May, Esq.

(Continued from p. 7573).

Allantus tricinctus, *Fabr.*

Fabr. Syst. Piez. 30, 5. *De Geer, Mémoires*, ii. 2, p. 234, tab. xxxiv, figs. 9—19. *Hartig, Blatt. und Holzwespen*, p. 288, No. 7. *Brischke, Blattwespen-larven*, 1e Lief, S. 15, Taf. iii. fig. 5.

Allantus niger, articulo primo antennarum fulvo, fascia eborina ad basin clypei, abdomine atro fasciis tribus anoque flavis.

The larva, as well as the perfect insect, of Allantus tricinctus has already been known for some time, and if it had been our intention to describe those species only which were wholly unrecorded, or of which the last stage only was known, we should not have included this or the two following species; but as we intend, if the wish be not too bold, to describe in time every species of our indigenous sawflies, we must not exclude those which have already been observed in two or three stages of development, the more so that even of the greater number of these good natural figures are wanting.

We find the larva of this species was first described by De Geer, in his 'Mémoires' (we quote the German translation of this work by Johann August Ephraim Götze, Neurenburg, 1778—1783). He found it in this country in August and September on the leaves of the honeysuckle. After him it was described by Hartig and Brischke. I have also in my posession a description in manuscript by C. B. Voet, a painter who resided at Zwolle. The larvæ do not live exclusively on the leaves of the honeysuckle (*Lonicera*); they are also found on the jasmine, seringa, snowberrry (*Symphorecarpus racemosus*), guelder rose (*Viburnum opulus*), and on young ash trees. They remain on the upper or under sides of the leaves during the whole day, until the commencement of evening twilight, almost motionless, and rolled up in a spiral form, as shown in our first figure. In the evening they wake out of their day sleep, and begin to feed.

I have always met with it nearly full grown, and this seems to have been the case with former observers, excepting De Geer, who says that his larvæ underwent frequent changes of skin, although he does not record whether any difference in outward appearance, except as to size, was observable during their progress to maturity. Brischke also observed the larvæ when young. According to this author they are then covered with a sort of bloom of a blue colour, and have black heads, while the marks on the back appear as small black triangles.

The larvæ have twenty-two legs, the fourth segment only being apodal. The head is shining, of a bluish black-brown colour; the parts of the mouth are pale brown; the eyes black; the head completely covered with very fine white hairs. The colour of the skin varies in different individuals, being generally gray, sometimes dull green, also light purple, always with dark purple velvety markings on the back, one on each segment, except the last. On the first segment this spot is oval or elliptical, and is divided in the middle by the dorsal vessel showing through. On the next segment the spot is triangular, with the apex towards the head and the base towards the tail, the base having two curled processes, between which are generally found two small lighter-coloured round spots. Above the legs is a longitudinal stripe, darker than the ground colour, and in this are placed the brown elliptical spiracles. The legs are of a redder tint.

I have no record of the number of times the larvæ change their skin. After the last moult they become pale ochreous-yellow, and more shining than before; the dark-coloured head assumes a red hue, with a pale brown spot on the crown; the triangular spots on the back are then scarcely perceptible. For this reason we are obliged to point out the inaccuracy of Brischke's fig. 5 c, which represents the insect subsequent to the last moult, but in which figure the triangular markings are quite as distinct as, if not more so than, in the others. Having arrived at this stage, the larvæ do not feed any more, but seek a suitable place in which to undergo their change.

The larvæ of Allantus tricinctus attain a length of 1 inch or 28 mm. Brischke states that upon being touched they emit from the mouth a brownish green fluid of a very fœtid odour. I do not deny the correctness of this, but have never observed it myself; I am only aware that they emit a greenish fluid from the mouth, with which they stick together grains of earth, and so make an oval cocoon in which to undergo their metamorphosis. This commonly takes place in September, in favourable seasons during the second week; if the weather is unfavourable at the end of that month, sometimes even in October.

The larva remains in the cocoon during the winter; it then gradually becomes shorter and thicker, the head sinking more between the six fore legs, which increase in length, the remaining legs gradually disappearing. The last moult does not take place until the beginning of June, when a red-coloured shining pupa is produced, in which the colours of the perfect insect are gradually developed. De Geer's observations concerning this pupa are very noteworthy, as also the manner in which he observed its passage from the larval state, and his remarks upon the subject.

The imago appears in the month of June of the following year. It is by no means a scarce insect with us, and has been observed in many different parts of the kingdom. On warm days and in the bright sunshine it appears very quick in its movements, but like most of the other Tenthredinidæ it is by no means shy.

The males occur less frequently than the females. The former are 11 mm. long from the head to the anus, the latter 14 or 15 mm., and expand 28 mm. The head is black, granular, punctate and covered with short hairs; eyes black; ocelli ruby-coloured. The first joint of the antennæ is testaceous or yellow, the remaining joints black; the antennæ themselves are shorter than the head and thorax; the third joint is the longest, the sixth the thickest. A milk-white, somewhat curved transverse line runs across the clypeus; the mandibles are light brown with black tips. The thorax is coarsely punctulate, pubescent, black; two yellow stripes run from the middle of the prothorax to the insertion of the wings, which is covered on either side with a brown tegula. Just above the coxæ of the third pair of legs is a round ivory-white spot. The scutellum is perceptibly raised. The abdomen is shining bluish black. The first, fourth and fifth segments have a yellow border. In some specimens small yellow spots are found on the sides of the third segment, and in some females on the sides of the sixth also. In the middle of the hind margin of the seventh segment is a semilunar spot; the eighth segment in the male is black, with a yellow spot in the middle; in the female the eighth and ninth are yellow. The wings have a pale brown costal nervure and stigma; a brownish blue-black spot extends over the marginal and submarginal cells. Coxæ black; trochanters yellow; femora more or less spotted with yellow and black; tibiæ and tarsi reddish yellow or light orange.

The saw and ovipositor of the female are long and slender, both somewhat curved, especially at the basal extremity. The saw is marked off by transverse lines into about twenty divisions, of which the foremost have one rounded tooth and the basal two; those divisions which are furnished with two teeth have also little longitudinal folds (see figs. 6 and 7).

The manner of oviposition, as also the shape and colour of the eggs, I have not observed. From what has been stated above it clearly appears that this sawfly has only one brood in the year.

CLADIUS VIMINALIS.

Fallen, Kongl. Vetensk. Acad. nya Handlingar. t. xxix. p. 117. *Hartig, Fam. der Blatt. und Holzwespen,* p. 177 (C. eucera, *Mus. Kleg.*) *Bouché, Naturgesch der Ins.* S. 140. *Lepel. de St. Fargeau, Monogr.* p. 61, No. 179 (Nematus grandis). *Ratzeburg, Forstinsecten,* iii. p. 129, Taf. iii. f. 9. *Brischke, Blattwespen-larven,* 1 Lief. S. 9. tab. ii. f. 1, a, b.

Cladius fulvus, capite, thoracis dorso, scutello et macula pectorali nigris, tarsorum articulis fuscis, basi fulvis, alarum stigmate fulvo.

From the above references it will be seen that this sawfly has been by some authors placed in the genus Cladius, and by others in Nematus. The neuration of the wings, however, will show that it cannot be ranked in the latter genus, although at the same time the insect in question does not very well fit into the group of the ordinary Cladii; for not only does it differ in the shape of the saw and borer in the female, and in the parts of the mouth in both sexes, but the entire facies, the size and colour, have something that recalls the Nemati; and Cladius viminalis may properly be regarded as a form leading from one genus to the other. This species might thus be separated as a sub-genus of Cladius; but as I am very reluctant to add, without absolute necessity, to the thousands of existing genera and sub-genera, I shall continue to regard our insect as belonging to the genus Cladius.

I am acquainted with the larvæ of the five indigenous species belonging to this genus: those of the species about to be described are not rare, and are conspicuous, when full grown, on account of their deep orange colour. In the middle of the month of July, 1844, I found some larvæ on a poplar at Zwammerdam; they were just out of the eggs, which were enclosed in the leaf-stalk. I was surprised at making this discovery at that particular season, as in the previous week I had seen perfect insects of the same species appear from the cocoons in my house. Probably the female by whom the eggs were deposited in the leaf-stalk had already appeared in the month of May, and it may be that the temperature of my room, which faced the north, had had some effect on the development of the insects.

The eggs were deposited on either side of the leaf-stalk of the poplar. The petiole was swollen on both sides, over and partially covering the eggs. I counted eight eggs on one side and ten on the other. The young larvæ, which were green with black heads, disposed themselves in a curved line on the under side of the leaf, the head being turned towards the point of the leaf; they consumed the lower epidermis and parenchyma only. After the second moult the yellow colour began to show itself on the first and penultimate segments, and the black spots became visible. Fig. 1 on plate 10 represents the larva after its third moult; the head is then pitchy brown; the body sea-green, excepting the first and penultimate segments, which are yellowish orange. A deeper green stripe runs along the back, and on the sides are to be seen black spots having the same position as in the full-grown larva, which is represented at our fig. 2. This latter is cylindrical, though larger round at the head than at the tail, and generally of a beautiful orange colour, but which in some individuals is tinged with green, especially in the middle of the dorsum. The skin is entirely covered with soft white hairs, which, when submitted to the microscope, appear to be spinous. The head is compressed anteriorly, the ground colour is pale brown, but, being covered with hundreds of minute black points, the whole head has the appearance of being black. The jaws are yellowish. The labrum is heart-shaped, notched at the anterior margin; the mandibles are much curved, and provided with one large tooth and three small ones; the maxillæ consist of two parts,—one broad and membranous, to which is attached the five-jointed palpus, and having first two and then seven long narrow teeth or projections; the other part of the maxilla is narrow and corneous. The labium is broad, wavy at the margin, and has two three-jointed palpi. The prothorax and the two last segments of the body have a round or sometimes square spot on either side; on the other segments is a similar spot, only larger and having a smaller spot below it; above the anus is a pretty large central black spot. The larva has altogether twenty legs; these are orange-coloured, with darker indentations at the joints, and having brown claws to the thoracic legs. The greatest length of the larvæ is 20 mm.

My larvæ fed upon the leaves of the Italian and Canadian poplar (*Populus monilifera* and *P. tremula*) until the end of August. According to Bouché they also feed on the leaves of Populus balsamifera. They live in company, and keep on the under side of the leaf, afterwards eating the edge. In the last week of August and the first week of September they descend from the trees, when they spin up in cocoons among the fallen leaves or in the crevices of the stems. These cocoons are very thin, of a yellow colour and shining. Although these cocoons are very thin, they are composed of two layers, the outward one somewhat coarser, the internal layer very fine. They are yellow or light brown, and shining as if varnished.

They remain enclosed without change until the beginning of June. At that date my larvæ cast an exceedingly thin skin, and changed into orange-yellow pupæ, as represented in fig. 3. Strictly speaking the body only was orange; the head, antennæ, legs and wings being yellow; the eyes are black. These pupæ are probably paler at first, becoming gradually deeper coloured. After shedding this last skin they bit open the cocoon, having become imagos, and sought the daylight and the warmth of the sun.

Fig. 4 represents a female of this species magnified nearly three times. The outward distinction between the sexes consists in this,—that in the female the abdomen is larger, more especially thicker, and that the males have a little knob on the under side of the third joint of the antennæ; also their antennæ are somewhat thickly clothed with short hairs, which, as well as the little knob, are wanting in the antennæ of the female. Cladius viminalis differs from the other indigenous species of Cladii in the form of the upper jaws, which, after the large terminal tooth, have two smaller teeth, instead of being notched like a saw.

The imago is 9 mm. long, expanding to 16 mm., and orange-yellow; only the head, the prothorax (with the exception of the pronotum), the back, and a spot on the breast are shining black; the antennæ are brown on the upper side, dirty yellow beneath; the palpi are yellow, and the terminations of the joints of the tarsi brown. The wings are a light reddish yellow, which vanishes towards the apical margin; the costal cell alone is bright yellow; the stigma is black-brown towards the base, and yellow towards the apex of the wing;

the nervures bounding the interno-medial cell are orange, all the others brown.

The saw of the female, represented at fig. 5, is short and compressed, as in the other Cladii, but is, on the other hand, but feebly dentate, and the corneous plates have no serratures on their sides, so that this instrument is only used as a saw, and not as a file, at the same time. The ovipositor has much the same appearance as that of the cther Cladii.

Note.—The author informs me that since the above was written a parasite, Tachina (Degeeria) parallela, has appeared from a number of these larvæ—*J. W. M.*

Capture of Sphærius acaroides, Hydrochus carinatus, &c., in the Fens. — While water-beetling in the Cambridge fens I had the good fortune to find a colony of the rare Hydrochus carinatus of Germar, in a small ditch about a hundred yards in length, and afterwards took one at Barwell. In the same fen I also secured a small Coleopteron, in a dry peat-pit; quite new to me, and which Mr. Waterhouse has identified with Sphærius acaroides of authors. I have no doubt that several specimens might have been taken, but its minuteness rendered the operation difficult in a gale of wind, which has been the normal condition of the weather this year wherever I have been. I also took Ilyobatis nigricollis, Trichopteryx pilicornis and Hypocytus discoideus, &c., from bundles of sedge, together with the regular fen inhabitants. The waters were less crowded, and frequently their only tenants were Corixæ, which were very abundant, including, I think, fourteen or fifteen species, the only well-marked ones being C. coleoptrata and one other. Sigara minuta was also abundant.—*G. R. Crotch ; Uphill House, Weston-super-Mare, August* 8, 1861.

*On the Metamorphoses of a Coccus found upon Oranges.**—If the external surface of almost any of the sweet oranges be only cursorily examined, it will be found more or less spotted with small scales, the shields of a Coccus, or scale insect; they are adherent to the rind of the orange, but can easily be detached ; and, on turning one of the larger ones over, it will be found, on examination under a low power, to present, as the most striking feature, a large accumulation of eggs lying beneath a cottony secretion ; very frequently these eggs are in the process of hatching, and under such circumstances we have the insect in its larva state. The body is white, oval, and very flat : there are two antennæ proceeding from underneath ; they are about one-fourth the length of the body, rather hairy, and of eight or nine joints, two very small light pink ocelli, or simple eyes, occur one on each side, at the very edge of the body, and about where the long curves of the oval commence ; considerably below the antennæ is a proboscis, a long and apparently horny tube, proceeding from a conical base. These, with the exception of a few isolated hairs, are the only external organs of the head that are apparent. The legs are six in number, each consisting of, I think, four members ; the terminal ones being provided with a hook, and two or more very small suckers hardly to be distinguished from hairs. At the extremity of the body two exceedingly minute hairs trail behind for some considerable length; and besides these are numerous setæ and orifices, parts, I believe, of the organ for the secretion of the cottony substance and the hard shield. The locomotive power of the larva—and this is the only time it makes use of it—is I believe very limited; frequently it settles close to the parent home, and I imagine that when once the proboscis is inserted in the orange it is never removed; the insect thus located, the skin on the back changes to a darker colour, thickens, and ultimately becomes a cast skin, the coccus having retreated between the secretions of the hard shield, as a protection above, and the cottony substance as a close attachment below, but to neither of them is it ever adherent; at this stage it also loses every trace of antennæ, legs and eyes, whilst, on the contrary, the proboscis is more fully developed: this is evidently the pupa state, and thus far I have been unable to detect any difference between male and female. The first indication that I have found of the male insect is the presence of two dark and rather diffused spots in the head, and also a simultaneous disappearance of the proboscis. Then, after a skin is cast, there is an entire disappearance of the organs for the secretions of the shield, which is completed of a long and narrow shape; one more stage in advance and the ocelli are black and distinct, and there can be traced two long antennæ and two wings at the side; six legs are also in process of development, the two in front being directed forward, which is a peculiarity of the pupa of this genus; and at the extremity of the body is a protuberance I imagine to be the male organ. Another skin is yet cast, and there is a perfect male insect. The ocelli are four, two above and two below; the antennæ eight- or nine-jointed, very delicate, hairy, and nearly the length of the whole body; the legs have four members, the terminal one of each being provided with a single hook and two or more delicate suckers; the wings project considerably beyond the body, they are transparent, but covered with very minute hairs, and strengthened by a simple ribbing of two corrugations which unite at the base. The two halterers or poisers are oval, and terminate with a hair bent like a hook at the extremity; and that which I presume to be the male organ is long, attenuated, and attached at its base to, and immediately above, a truncated projection which has an aperture at its apex. We thus find in the male complete insect metamorphoses. I am unable to say as much of the female, though I presume that such must be the case, as only a perfect insect is capable of reproducing its species. I have not as yet paid much attention to this sex, but so far as my observations have gone, after it has changed into the pupa state all external organs disappear, excepting those at the extremity of the body, and the proboscis, which becomes stronger and larger; the secretion of the shield is continued until nearly four or five times the size of the male, and the body of the insect bears about the same proportion; it then deposits its eggs, between one and two hundred in number, which are placed on end in great regularity, and the first ones will frequently be found hatching before the last are laid. The external surface of the shield of the male gives very marked indications of the three changes that have taken place: first, there is the cast skin of the larva; secondly, the shield for the pupa; and thirdly, a thin and short addition to the shield for the wings of the imago, which I believe is lifted up when the insect escapes. There are also three similar indications on the external surface of the female shield, and these may also warrant the conclusion that its metamorphoses have been complete. It is somewhat surprising that these Cocci are to be found in a living state at all, after the change they must have experienced in the climate; it is, however, very evident that the larva and pupa states are much hardier than that of the imago; at least so far as the males are concerned, I have found it very difficult to obtain any alive after the external organs were fully developed. As it is, the circumstances under which they appear are very favourable to their examination; one single orange, if well selected, will supply every condition I have mentioned; and I imagine that, from the fact of the shield being such a complete protection, the metamorphoses are more distinct in their development than under the more ordinary circumstances where the insect itself is exposed. I have invariably used Mr. Wenham's binocular arrangement with the microscope, and I can only say that for this class of investigations the results are perfectly marvellous.—*Richard Beck.*

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* Read at the Microscopical Society of London, March 13, 1861.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

August 5, 1861.—J. W. DOUGLAS, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—'Proceedings of the Royal Society,' vol. xi. No. 44; presented by the Society. 'Proceedings of the Zoological Society,' 1861, part 1; by the Society. 'Sitzungberichte der Königl. bayer. Akademie der Wissenschaften zu Münnchen,' 1861, 1; by the Academy. 'The Natural History of the Tineina,' vol. vi.; 'The Entomologist's Weekly Intelligencer,' Nos. 248—252 inclusive; by H. T. Stainton, Esq. 'The Zoologist' for August; by the Editor. 'Anatomisch-Physiologische Unterserchungen über den Athmungsprozess der Insekten,' von H. Rathke; by the Author. 'Die Metamorphose des Caryoborus (Bruchus) gonagra, *Fabr.*,' von H. L. Elditt; by the Author. 'Schieften der Königlichen Physikolisch-ökonomischen Gesellschaft zer Königsberg,' Erster Jahrgang, Abth. 1 and 2; by the Society. 'The Athenæum' for July; by the Editor.

Election of a Subscriber.

John G. Grenfell, Esq., of the British Museum, was elected a Subscriber to the Society.

Exhibitions.

Mr. Bowring exhibited a box of Coleoptera from Penang, including many interesting species of Longicorns, some remarkable Cetonidæ and Cassididæ, a new species of Paussus, &c.

Mr. Stevens exhibited a splendid series of Buprestidæ, from the neighbourhood of Adelaide, containing upwards of fifty species.

Mr. M'Lachlan exhibited drawings of the larvæ of Eupithecia pusillata, E. dodoneata, Charadrina blanda and C. alsines, executed by the Rev. H. Harpur Crewe.

Mr. Stainton exhibited two examples of a Noctua, taken in the fens of Norfolk, at the end of June, by Messrs. Winter and Crotch, and which is believed to be the Nonagria Elymi of Treitschke. a species hitherto only found on the shores of the Baltic.

Mr. Fereday exhibited a singular Polyommatus, which he believed to be a hybrid produced from P. Alexis and P. Ægon; also two fine varieties of Tæniocampa munda, found on sallow blossoms near Croydon.

Mr. Smith sent for exhibition, preserved in spirits, the example of Aspidomorpha Stæ Crucis which he had exhibited alive at the June Meeting of the Society, and communicated the following particulars respecting it. "This insect was fifty-six days on the voyage to this country, and lived for sixty days after its arrival, making in all one hundred and sixteen days, with no other nourishment than a little moisture. During the last week or ten days of its life the bright golden lustre became dull copper, or rather dull tarnished gold, but when I found it dead it had regained all its golden brilliancy, which it retains in the spirits."

Mr. Bond exhibited the sexes of a new species of Gelechia, allied to G. pictella, taken by Mr. Barrett on the sand hills, near Dublin, and for which Mr. Stainton had proposed the specific title of "Tarquiniella."

The President exhibited a specimen of a Spilonota allied to S. dealbana, but distinct from any recorded British species. He had recently casually captured this insect at Mickleham, and was informed that specimens of apparently the same species had been taken last season at Deal, frequenting fir trees, and that Mr. M'Lachlan had also taken and bred a similar species from larches at West Wickham Wood.

The President also exhibited the following Coleoptera and Hemiptera:—Scraptia fusca and Abdera 4-fasciata, from the Purley Oaks, near Croydon; Myrmedobia coleoptrata, *Fallen* (Anthocoris exilis, *Fallen*), from Mr. Wollaston's collection, a rare species living with ants, and the sexes of which are so dissimilar thet they have been placed in different genera; and Microphysa pselaphoides, taken in ants' nests by Dr. Power.

Professor Westwood exhibited two larvæ of Œstrus hominis, which he had received (by the hands of Dr. Hagen) from Count Osten-Sacken, Russian Minister at Washington, who had obtained them from Dr. Leconte, who had himself received them from Honduras. The larvæ clearly belonged to the family Œstridæ, but differed from the ordinary forms in the greater elongation of the narrow anterior parts of the body and the remarkably strong rows of reflexed spines with which the segments of the hind part of the body are armed. Many accounts have from time to time been published of the occurrence of larvæ, supposed to be those of a species of Œstrus, in the human body, but Professor Westwood recollected no instance of a description of the larva being published, sufficiently precise to allow of satisfactory identification. He had indeed been led to the belief that in these recorded cases (certainly so in that of M. Procé) larvæ of Muscidæ had been mistaken for Œstri, as it was not improbable that a blow-fly would deposit its eggs either in a slight wound on the body of a sleeping person, or upon the parts covered by a more delicate skin than the other parts of the body, or if the larva was really that of an Œstrideous insect some quadrupedal bot-fly, under pressure of a necessity for the deposition of her ova, might have accidentally been led to lay them upon a human body. The examination of the larvæ sent by Count Osten-Sacken seemed to prove that these ideas were erroneous, and that a bot-fly does exist distinct in its larva state from any hitherto described which is found in the human body.

(Since the exhibition of the specimens in question Mr. Bates has informed Professor Westwood that whilst on the Amazons he was attacked by one of these Œstrideous larvæ, which formed a tumour upon the calf of his leg, which suppurated, and the scar of which is still visible. He had also extracted one from the fleshy part of the back of a negro girl who helped in his house. He was induced to believe that the species was only an accidental intruder in such a position, and that it was truly parasitic upon the howling monkeys, as he had killed one of those animals and found its body infested with a number of apparently the same kind of larvæ. What a curious illustration does this statement afford, if correct, of the relationship of man and the monkey!)

Dr. Knaggs exhibited a box of Australian Coleoptera, collected in the neighbourhood of Sidney by Dr. Pittar.

Dr. Knaggs also exhibited a series of Nonagria (?) Bondii, of which several specimens were females; and a specimen of Acidalia strigilata, for the first time in this country, bred by himself from the egg; also both sexes of Acentropus niveus, and made the following statements in support of the opinion that this species belongs to the order Lepidoptera:—"*First*, that it appeared from the beginning until the third week in June; that it then disappeared, or nearly so, for about a month, when it again made its appearance; which was precisely his experience of Paraponyx stratiotalis, &c. *Secondly*, that the eggs of Acentropus were laid on the setting-boards as, and had a most striking resemblance to, those of P. stratiotalis (eggs of both species were exhibited). *Thirdly*, that although its usual habit, when flying, was to keep close to the surface of the water, as Psyche does to land, yet, like Psyche also, he had occasionally seen it mount perpendicularly into the air, rising higher and higher until lost to sight. *Fourthly*, that when 'boxed' it rubbed its thorax in true Lepidopterous fashion."

Mr. M'Lachlan and other members present remarked that the observations of Dr. Knaggs, relative to the flight of this species and its liability to injure itself when confined in a pill-box, would apply equally well to many of the Phryganidæ.

Mr. Shepherd read a letter from Mr. G. King, announcing the capture of specimens of Leucania putrescens at Torquay.

The Secretary read a communication from Lord Dunsany, dated from Navan, Ireland, August 2nd, 1861, accompanying specimens of the larva of Biston hirtarius, and stating that these caterpillars were first noticed in that neighbourhood in 1858, but in small numbers; in 1859 (a remarkably dry season) they were very numerous; in 1860 none were seen; but this year, the spring having been dry, they have appeared in immense numbers, and at the present time plantations of large ash trees are stripped of their leaves by them as completely as they would be in mid-winter. —*E. S.*

Ants the Inventors of the Tubular Bridge.—When, on their line of march, the gray bashikouay ants of Equatorial Africa require to cross a narrow stream, they throw themselves across and form a tunnel—a living tunnel—connecting two trees or high bushes on opposite sides of the little stream, whenever they can find such to facilitate the operation. This is done with great speed, and is effected by a great number of ants, each of which clings with its four claws to its next neighbour's body or hind claws. Thus they form a high, safe, tubular bridge, through which the whole vast regiment marches in regular order. If disturbed, or if the arch is broken by the violence of some animal, they instantly attack the offender with the greatest animosity. —*Du Chaillu's 'Explorations,'* p. 313.

Description of the Larva of Eupithecia distinctata. — Rather long and slender, tapering considerably towards the head. Ground colour dark green. Central dorsal line broad, purplish red. Spiracular line indistinct, greenish yellow. Skin wrinkled. Back studded with numerous very short, stiff, bristly hairs. Down the centre of the belly a whitish line. Ventral segmental divisions yellowish. I have taken this larva in Derbyshire and Bucks, feeding on flowers of Thymus Serpyllum, in August. Pupa yellowish green and olive, enclosed in a slight earthen cocoon. — *H. Harpur Crewe; The Rectory, Drayton-Beauchamp, Tring, August* 8, 1861.

Description of the Larva of Eupithecia pusillata. — Long, slender, and tapering considerably towards the head. Ground colour orange-red or dull ochreous-green. Central dorsal line dusky olive, often only apparent on the anterior segments. Subdorsal lines same colour. Spiracular line yellow. Segmental divisions orange. Central ventral line yellowish. The above description was taken from larvæ reared from eggs kindly sent me by Mr. M'Lachlan. They fed on spruce fir, and were full fed the first week in July. Pupa enclosed in a slight earthen cocoon. Slender and delicate. Pale ochreous-yellow. Eyes black and prominent. Upper edge of wing-cases bordered with two black spots, lower edge by a slender blackish line.—*Id.*

Capture of Acronycta strigosa in Cambridgeshire. — On the 3rd of last July I captured a specimen of this moth at sugar. Last year I was fortunate enough to capture several pairs. Acronycta strigosa prefers a covered situation in the immediate vicinity of young ash trees. It takes sugar freely. Its flight is low, undulating, and even slow. Most of my specimens I took either after a slight shower of rain or during a brisk breeze. One might easily pass this insect over, as it sits particularly close, with closed wings, and its colouring being so near to the small knobs of the grayish white of the ash as to be distinguished with difficulty therefrom. This year is decidedly an unpropitious one as far as Cambridgeshire is concerned, many common species not having made their appearance at all. — *S. P. Saville; Dover House, Cambridge, July* 23, 1861.

Pupa of a Limnobius enclosed in a jelly-like Substance.—In a pond near Rainhill I lately found the pupa of a Dipterous insect, enclosed in a wrapper of jelly, so pellucid that when transferred to a glass of pure water it was scarcely visible. The jelly was five or six times the thickness of the enclosed pupa, and quite firm. In a few days the transformation took place, and the insect proved to be a Limnobia; I am not certain of what species.—*Henry H. Higgins.*

Bluebottles and Ants.—A day or two ago I picked up a pear lying on the garden walk, and as quickly put it down again on finding some half-a-hundred ants clustering on the under side, which was much eaten away. Yesterday morning the pear was gone, but several bluebottle flies were collected on the spot, evidently attracted by some fruity matter remaining on the gravel. These flies were in the thoroughfare of a nest of the small black ant, and I was struck by the vigilance displayed by the flies in avoiding contact with their Hymenopterous comrades; the bluebottles edged away the moment an ant came within half an inch of one, though the latter seemed unaware of their presence. It was a busy scene, there being fourteen or fifteen bluebottles and much more than as many ants in constant movement, the flies often springing up an inch or two to avoid contact with the ants, but the latter did not appear to make any attempt to seize them. The care displayed by the large bluebottles to avoid their diminutive neighbours argues an instinctive dread of the latter as real as that entertained by a small bird for a hawk, accompanied with an apparent consciousness of safety as long as absolute contact was avoided.—*George Guyon; Richmond, Surrey, August* 15, 1861.

Capture of Emmelesia unifasciata near Forest Hill. — On a paling under an oak tree near here I have lately had the good fortune to take two fine specimens of this pretty species. When sitting on a fence the resemblance they bear to small, sharply-marked examples of Coremia ferrugaria is very striking, and might easily decevve beginners. This is also remarked by M. Guenée. — *R. M'Lachlan, in the 'Intelligencer'; Forest Hill, August* 19, 1861.

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